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NEW OR NOTEWORTHY PHILIPPINE PLANTS, XV

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This series of papers was commenced in 1904,[1] the present contribution being essentially like the preceding ones. In the series have been included the descriptions of new genera and species, notes on nomenclature and on obscure species, and records of known genera and species not previously reported from the Philippines. Fourteen genera and about one thousand one hundred fifty-five species, including those of the present paper, have been described as new.

The present paper consists chiefly of the descriptions of one hundred new or presumably new species, with the records of eighteen previously known ones not hitherto recorded from the Philippines. Nine genera are for the first time recorded as Philippine; namely, *Tripogon, Festuca* (introduced), *Cryptocoryne, Haematocarpus, Citriobatus, Erodium* (introduced), *Villaresia, Sloanea,* and *Cloëzia.* Of these *Citriobatus* and *Cloëzia* are of special interest from the standpoint of phytogeography. *Cloëzia* has hitherto been known only from New Caledonia, where it is represented by six species, the seventh species occurring in the mountains of northeastern Mindanao. *Citriobatus*

[1] Merrill, E. D. New or noteworthy Philippine plants, I, *Govt. Lab. Publ. (Philip.)* 6 (1904) 1–18; II, *op. cit.* 17 (1904) 1–47; III, *op. cit.* 29 (1905) 1–50; IV, *op. cit.* 35 (1905) 1–77; V, *Philip. Journ. Sci.* 1 (1906) *Suppl.* 169–246; VI, *op. cit.* 3 (1908) *Bot.* 219–267; VII, *op. cit.* 4 (1909) *Bot.* 247–330; VIII, *op. cit.* 5 (1910) *Bot.* 167–257; IX, *op. cit.* 7 (1912) *Bot.* 257–357; X, *op. cit.* 9 (1914) *Bot.* 261–337; XI, *op. cit.* 10 (1915) *Bot.* 1–84; XII, *op. cit.* 10 (1915) *Bot.* 287–349; XIII, *op. cit.* 13 (1918) *Bot.* 1–66; XIV, *op. cit.* 13 (1918) *Bot.* 263–333.

is an interesting Australian type, the genus being confined to Australia with the exception of the Javan *C. javanicus* Boerl. & Koord., which is now also recorded from Luzon. Another interesting Australian type, previously known only from Australia and Formosa, is *Ipomoea polymorpha* Roem. & Schultes, now recorded from two localities in northern Luzon.

PANDANACEAE

PANDANUS Linnaeus

PANDANUS PANAYENSIS sp. nov. § *Vinsonia.*

Erectus, circiter 5 m altus; foliis crassissime coriaceis, rigidis, circiter 2.5 m longis, 7 cm latis, basi leviter inflatis et 11 cm latis, apice angustatis, vix acuminatis, margine, basi et apice exceptis, dentibus rigidis armatis; infructescentiis pendulis, syncarpiis 4, ellipsoideis ad oblongis, racemose dispositis, 12 ad 20 cm longis, 8 ad 10 cm diametro; drupis numerosis, ½ superioribus liberis, utrinque subaequaliter angustatis, obscure 5-angulatis, circiter 4 cm longis, 5- ad 10-locellatis, apice truncatis, 5 ad 8 mm diametro, inter loculis leviter sulcatis; stigmatibus planis, subreniformibus, circiter 1.5 mm diametro.

Erect, about 5 m high. Leaves very thickly coriaceous, rigid, about 2.5 m long, the base slightly inflated, about 11 cm wide, soon narrowed to about 7 cm and about this width for most of their length, apex narrowed, scarcely acuminate, the apical and basal margins unarmed, the margins otherwise with distinct, sharp, rigid teeth which gradually decrease in size upward, the midrib on the lower surface armed with short scattered teeth in the median and upper parts. Infructescences peduncled, pendulous, their peduncles up to 40 cm in length, 3-angled, about 1.5 cm in diameter. Syncarps 4, ellipsoid to oblong, 12 to 20 cm long, 8 to 10 cm in diameter, the peduncles of the lateral ones stout, very short, of the terminal one up to 8 cm in length. Drupes very numerous, the upper one-half free, subequally narrowed to both base and apex, about 4 cm long, 1.5 to 2 cm in diameter, somewhat 5-angled, usually 5- to 10-celled, the apex truncate, 5 to 8 mm in diameter, slightly sulcate between the loculi, the sulci about 1 mm deep. Stigmas plane, orbicular to somewhat reniform, about 1.5 mm in diameter.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30796 Ramos & Edaño,* April 22, 1918, on forested slopes.

This species resembles *Pandanus philippinensis* Merr., from which it is distinguished especially by its differently shaped syncarps, the drupes of which are free in the upper one-half

and scarcely sulcate between the loculi. In *Pandanus philippinensis* the stigmas are distinctly oblique, while in the present species they are plane and not at all elongated, so that the two species scarcely belong in the same section of the genus.

PANDANUS CAMARINENSIS sp. nov.

Frutex erectus, circiter 2 m altus; foliis coriaceis, circiter 2.4 m longis et 5.5 cm latis, margine perspicue armatis, sursum angustatis et tenuiter caudato-acuminatis; syncarpiis solitariis, erectis, oblongo-cylindraceis, circiter 30 cm longis et 13 cm diametro; drupis numerosis, obovoideis, circiter 5 cm longis et 2.5 ad 3 cm diametro, angulatis, plerumque 7-locellatis, apice truncatis, laevis, stigmatibus planis, haud productis.

An erect shrub, about 2 m high, the leaves about 2.4 cm long and 3.5 cm wide, gradually narrowed upward to the slenderly caudate-acuminate apex, the margins armed with rather prominent antrorse teeth. Syncarps solitary, erect, at maturity nearly enclosed by the leaflike bracts, oblong-cylindric, about 30 cm long and 13 cm in diameter. Drupes numerous, obovoid, somewhat angled by mutual pressure, narrowed below, usually 7-celled, about 5 cm long, 2.3 to 3 cm in diameter, the upper 1 cm free, very slightly narrowed, the apex truncate, flat, smooth, about 2 cm in diameter. Stigmas usually 7, obscure, not at all projecting.

LUZON, Camarines Province, Paracale, *Bur. Sci. 33635 Ramos & Edaño*, December 21, 1918, in damp forests at low altitudes.

This species is closely allied to *Pandanus esculentus* Martelli from which it is distinguished chiefly by its much larger, differently shaped syncarps.

GRAMINEAE

ANDROPOGON Linnaeus

ANDROPOGON PHILIPPINENSIS sp. nov. § *Isozygi, Arthrolepis.*

Culmis erectis, tenuibus, usque ad 80 cm longis; foliis usque ad 20 cm longis et 4 mm latis, leviter scabridis; racemis longe exsertis, solitariis multifloris, 7 ad 10 cm longis, vagina vix inflata; spiculis sessilibus lanceolatis, 9 mm longis, gluma II aristata, IV longe aristata, arista circiter 3 cm longa; spiculis pedicellatis ♂, circiter 8 mm longis, haud aristatis.

An erect, rather slender, glabrous, apparently tufted grass, 60 to 80 cm high, unbranched, the culms 1 to 1.5 mm in diameter. Leaves up to 20 cm long, about 4 mm wide, slightly scabrid, very slenderly acuminate; nodes glabrous; ligule bearded. Raceme solitary, long-exserted, many flowered, 7 to 10 cm long,

the uppermost sheath scarcely inflated, the rachis rather fragile, its joints about 4 mm long, deeply sulcate on one side, the margins prominently white-bearded, obliquely cucullate at their tips. Spikelets green or green and purple, the sessile ones perfect, lanceolate, about 9 mm long; first glume firm, lanceolate, acuminate, 9 mm long, 2-keeled, the margins inflexed; second glume thinner, 7 mm long, acuminate, keeled above and with a slender, 10 to 12 mm long, apical awn; third glume hyaline, oblong, 5 mm long; fourth glume hyaline, 4 mm long, cleft, about 1 mm wide, the awn geniculate, about 3 cm long. Pedicelled spikelets lanceolate, acuminate, about 8 mm long, not awned, their pedicels 3 to 3.5 mm long, sulcate, margins bearded; first glume lanceolate, acuminate, 2-keeled, usually 7-nerved, the inflexed margins ciliate in the upper part; second glume as long as the first one, hyaline, 1-nerved; third and fourth glumes shorter and narrower, the latter subtending a staminate flower.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32946* (type), *32755 Ramos*, July, 1918, growing on open, dry, rocky slopes at low altitudes.

This species is well characterized by its solitary, long-exserted racemes and is distinctly anomalous in the section *Arthrolepis* by this character and also by its sulcate rachis-joints and pedicels; the second glume of the sessile spikelet is long-awned and hence the present species cannot be placed in any of the other subgenera of the series *Isozygi*. The sessile spikelets are all alike throughout the entire length of the raceme, hence it cannot be placed in any of the subgenera of the series *Heterozygi*. So far as I am able to determine it is most closely allied to *Andropogon longipes* Hack., of British India, from which it is readily distinguished by its solitary racemes as well as by its floral characters.

ANDROPOGON GRYLLUS Linn. var. PHILIPPINENSIS var. nov.

Glaberrima, circiter 75 cm alta; foliis 15 ad 27 cm longis, 5 mm latis; paniculis oblongis 12 ad 15 cm longis, purpureis, rachibus ramulisque laevis; spiculis lanceolatis, ♀ circiter 6 mm longis, callo 1.5 mm longo, fulvo-barbato, gluma II breviter aristata, arista 2 ad 3.5 mm longa, ♂ lineari-lanceolatis, 5 ad 6 mm longis, vacuis, gluma II acuminata, vix aristata.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 30964 Ramos & Edaño*, April 10, 1918, on bowlders and ledges in stream beds, observed only in this habitat.

Andropogon gryllus Linn. extends from southern Europe to Australia and was recorded from the Philippines by F.-Villar, Novis. App. (1883) 316, as *Chrysopogon gryllus* Trin. The typi-

cal form of the species certainly does not occur in the Archipelago, nor can I refer the specimens cited above to any of the described varieties of it. It is apparently most closely allied to the Australian *Andropogon gryllus* Linn. subsp. *genuinus* Hack., var. *pallidus* (R. Br.) Benth., but has distinctly smaller spikelets than this variety, while the pedicellate spikelets are empty and not awned.

ANDROPOGON SANGUINEUS (Retz.) Merr. in Philip. Journ. Sci. 12 (1917) Bot. 101.

Rottboellia sanguinea Retz. Obs. 3 (1783) 25.
Thelepogon sanguineus Spreng. Syst. 1 (1825) 299.
Andropogon pseudograya Steud. Syn. 1 (1855) 365.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32777 Ramos*, August 5, 1918, on open grassy slopes at low altitudes.

Southern China, India, Ceylon, and Madagascar.

FESTUCA Linnaeus

FESTUCA MYUROS Linn. Sp. Pl. (1753) 74; Hook. f. Fl. Brit. Ind. 7 (1897) 356.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31913 Santos*, April 25, 1918, in open grassy places, altitude about 2,300 meters.

A grass of wide distribution in the North Temperate Zone, a native of Europe or Asia, now also abundant in North America; undoubtedly a recently introduced plant in Benguet.

TRIPOGON Roth

TRIPOGON CHINENSIS (Franch.) Hack. in Bull. Herb. Boiss. II 3 (1903) 503.

Nardurus filiformis Steud. var. *chinensis* Franch. in Nouv. Arch. Hist. Nat. Paris. II 7 (1894) 149.

LUZON, Ilocos Norte Province, Mount Nagapatan, *Bur. Sci. 33237 Ramos*, August 8, 1918, on dry, open, rocky slopes.

This genus is new to the Philippines, the specimen cited above agreeing perfectly with the descriptions and with a series of specimens from Chili Province, collected by Mrs. Clemens. It is reported from as far south as Formosa.

CYPERACEAE

MARISCUS Gaertner

MARISCUS NIVEUS (Murr.) comb. nov.

Schoenus niveus Murr. in Linn. Syst. Veg. ed. 13 (1774) 81.
Scirpus glomeratus Linn. Sp. Pl. (1753) 52, excl. syn. Gronov., non *Mariscus glomeratus* Barton.
Schoenus coloratus Linn. var. β Linn. Sp. Pl. ed. 2 (1762) 64.

Cyperus kyllingiaeoides Vahl Enum. 2 (1806) 312.
Mariscus dregeanus Kunth Enum. 2 (1837) 120; C. B. Clarke in Hook. f. Fl. Brit. Ind. 6 (1893) 620.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32826 Ramos*, July 24, 1918, on rocky open slopes at low altitudes, abundant.

This species has previously not been reported from the Philippines. India to tropical Africa, the Malay Peninsula, Singapore, and Borneo.

ELEOCHARIS R. Brown

ELEOCHARIS SPIRALIS (Rottb.) Steud. Syn. 2 (1855) 81; C. B. Clarke in Hook. f. Fl. Brit. Ind. 6 (1893) 627.

Scirpus spiralis Rottb. Descr. Ic. (1773) 45, *t. 15, f. l.*

LUZON, in swamps between Manila and Caloocan, *Merrill 9788*, December, 1914.

India to Ceylon, Burma, Indo-China and ? Mauritius. Not previously reported from the Philippines. It is to be noted that R. Brown does not make the actual combination, *Eleocharis spiralis*, Prodr. (1810) 224, but merely indicates that *Scirpus spiralis* Rottb. belongs in the genus *Eleocharis*.

ARACEAE

CRYPTOCORYNE Fischer

CRYPTOCORYNE APONOGETIFOLIA sp. nov.

Herba glabra, aquatica, demersa; foliis membranaceis, anguste oblongo-lanceolatis, perspicue bullatis, utrinque angustatis, basi acutis vel obtusis, apice acutis et apiculatis, 25 ad 35 cm longis, 3 ad 5 cm latis; petiolo usque ad 30 cm longo; spathis anguste cylindraceis, haud contortis, circiter 25 cm longis, lamina glabra, lanceolata, caudato-acuminata, 6 cm longa, deorsum 1 cm lata.

An entirely glabrous submerged herb from short, rather stout, nearly erect rhizomes about 1 cm in diameter. Leaves membranaceous, narrowly oblong-lanceolate, conspicuously bullate, the midrib very prominent, subequally narrowed to the acute or obtuse base and to the acute and slightly apiculate apex, 25 to 35 cm long, 3 to 5 cm wide; lateral nerves slender, ascending, 5 or 6 on each side of the midrib; petioles up to 30 cm long. Peduncles 4 to 7 cm long. Spathe cylindric, not twisted, slender, including the limb about 25 cm long, slightly inflated at the base, not at all contracted below the limb, the limb lanceolate, glabrous, caudate-acuminate, 6 cm long, about 1 cm wide in the lower part. Carpels usually 6, the slender stipe of the staminate inflorescence about 6 mm long; staminal

inflorescence oblong, about 4 to 5 mm long, the sterile tip 1.2 mm in length.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31119 Ramos & Edaño,* April 14, 1918, in shallow water of streams, the spathes pinkish white. To this species I also tentatively refer a sterile specimen from Negros, *For. Bur. 19411 Curran,* June, 1910.

This species is manifestly allied to *Cryptocoryne ciliata* Fisch. from which it is readily distinguished by its membranaceous, conspicuously bullate leaves, which resemble those of some species of *Aponogeton;* and by its much narrower, differently shaped, caudate-acuminate limb of the spathe, which is entirely glabrous.

CRYPTOCORYNE PYGMAEA sp. nov.

Herba glabra, depauperata; foliis membranaceis, oblongis ad oblongo-ovatis, 1.5 ad 4 cm longis, acutis, basi perspicue auriculato-cordatis, nervis utrinque 2, tenuis; spathis circiter 3.5 cm longis, inflatis, tubo oblongo, supra contracto; lamina tubo aequantibus, lanceolatis, caudato-acuminatis, planis, haud contortis.

An entirely glabrous dwarfed plant from short stout rhizomes. Leaves membranaceous, oblong to oblong-ovate, 1.5 to 4 cm long, 1 to 1.5 cm wide, the apex acute, base conspicuously auriculate-cordate; lateral nerves very slender, ascending, about 2 on each side of the midrib; petioles in young plants shorter than the leaves, in mature plants up to 5 cm long, slender, sheathing at the base. Peduncles in anthesis 8 mm long or less, in fruit up to 3 cm long. Spathe greenish white, about 3.5 cm long, the tube and limb of equal length; tube somewhat inflated, oblong, contracted at the apex; limb lanceolate, caudate-acuminate, about 6 mm wide at the base, 1.8 cm long, dark-purple on the inner surface. Carpels usually 6; stigma obtuse; staminate inflorescence ovate, 3 mm long, its sterile tip oblong, 2 mm in length, the slender stipe 6 to 7 mm long.

MINDANAO, Zamboanga District, Sax River, *Merrill 8174,* December 6, 1911 (type); *Copeland s. n.,* in fruit. This species grows in the crevices of ledges, in stream beds, in very damp shaded ravines, in situations subject to overflow, at an altitude of about 300 meters.

This species is manifestly very closely allied to the Bornean *Cryptocoryne auriculata* Engl. but is smaller in size, with much slenderer, longer, less conspicuously sheathing petioles and fewer nerves; while the tube of the spathe equals the limb in length and is conspicuously contracted at the apex.

URTICACEAE

ELATOSTEMA Forster

ELATOSTEMA PANAYENSE sp. nov.

Herba erecta, 15 ad 40 cm alta, ramis subadpresse hirsutis; foliis inaequilateralibus, oblongo-obovatis, 2.5 ad 7 cm longis, subsessilibus, superne perspicue dentatis, subtus ad costa nervisque perspicue adpresse hirsutis; inflorescentiis ♂ 1 ad 1.5 cm diametro, longe pedunculatis, bracteis exterioribus late ovatis, circiter 7 mm longis, perspicue corniculatis; inflorescentiis ♀ sessilibus vel brevissime pedunculatis, confertis, circiter 8 mm diametro; floribus, 4-meris.

An erect, simple or sparingly branched herb, 15 to 40 cm high, the basal parts of the stems often prostrate and rooting, the stems and branches subappressed-hirsute. Leaves membranaceous and olivaceous when dry, inequilateral, oblong-obovate, 2.5 to 7 cm long, 1.5 to 4 cm wide, sessile or subsessile, the apex rounded to acute, the terminal tooth usually acute, the broader side with 8 to 10, prominent, acute teeth, the narrower side usually with about 5 similar teeth, the margins in the lower one-half entire, base auriculate-rounded on the broader side, acute on the narrower side, somewhat obliquely cordate, the upper surface with numerous, conspicuous, irregularly arranged cystoliths, sometimes with a few long hairs, more often glabrous, the lower surface appressed-hirsute on the conspicuous nerves and reticulations, the cystoliths obscure or obsolete; petioles 2 mm long or less, appressed-hirsute; stipules membranaceous, oblong, glabrous, about 5 mm long. Staminate inflorescences in full anthesis 1 to 1.5 cm in diameter, their pedicels slender, glabrous, 1 to 1.5 cm long; outer bracts very broadly ovate, about 7 mm long, 6 mm wide, conspicuously corniculate, the apical projection 1.5 to 2.5 mm long, the margins ciliate, the inner bracts oblong-obovate, apiculate, 2.3 mm wide; bracteoles spatulate, membranaceous, 4 to 5 mm long, 1 to 1.5 mm wide, ciliate. Staminate flowers 4-merous, very numerous, their pedicels 4 to 5 mm long. Sepals elliptic to elliptic-ovate, 2 to 2.3 mm long, with a few long white hairs near the apex, two of them minutely cucullate and obscurely apiculate. Pistillate inflorescences axillary, sessile, or subsessile, densely many-flowered, up to 8 mm in diameter, the bracteoles spatulate, ciliate, about 3 mm long.

PANAY, Antique Province, Culasi, *Bur. Sci. 32396* (type), *31032, 31082, 31083, 31084, 30921, 30924, 30925 Ramos & Edaño*, April and May, 1918, in damp forests along streams.

This species belongs in the group with *Elatostema obovatifolia* Wedd. and in many characters is similar to **Elatostema elmeri** nom. nov. (*E. pictum* Elm., non Hallier f.), from which it is easily distinguished by its appressed-hirsute branches, nerves, and reticulations on the lower surface of the leaves; *Elatostema elmeri* is glabrous.

ELATOSTEMA MACGREGORII sp. nov.

Herba prostrata, usque ad 16 cm longa, ramis et subtus foliis ad costa nervisque perspicue hirsutis; foliis subsessilibus, obovatis ad oblongo-obovatis, 6 to 12 mm longis, inaequilateralibus basi leviter oblique cordatis, dentibus in partibus superioribus 4 vel 5, conspicuis; inflorescentiis ♂ tenuiter pedunculatis, bracteis exterioribus late ovatis, corniculatis, ♀ sessilibus, bracteolis perspicue ciliatis; floribus, 4-meris.

A slender, prostrate or somewhat ascending, simple or sparingly branched herb, the stems 16 cm long or less, the latter with scattered, ascending or somewhat spreading, hirsute hairs. Leaves green when dry, sessile or subsessile, obovate to oblong-obovate, inequilateral, 6 to 12 mm long, 5 to 8 mm wide, the apex obtuse to subacute, the apical part with 4 or 5 conspicuous, usually rounded teeth, the margins in the lower two-thirds to three-fourths entire, base rounded-auriculate on the broader side, obtuse on the narrower side, somewhat obliquely cordate, the upper surface glabrous and with scattered cystoliths, the lower surface somewhat appressed-hirsute on the midrib and nerves, the latter 2, rarely 3, on each side of the midrib, the cystoliths obsolete; stipules membranaceous, oblong, glabrous, about 2 mm long. Staminate receptacles axillary, solitary, 4 to 5 mm in diameter, their peduncles slender, glabrous, 1 to 2 cm long; outer bracts broadly ovate, about 4 mm long and wide, the apex rounded or retuse, prominently keeled and corniculate, the apiculus about 1.2 mm long, glabrous or nearly so, the inner bracts oblong-ovate, somewhat ciliate; bracteoles spatulate, sparingly ciliate, 3 mm long. Flowers 4-merous, shortly pedicelled. Sepals oblong to oblong-elliptic, 1.5 mm long, two slightly cucullate and minutely apiculate, usually with a few long ciliate hairs above. Pistillate inflorescences sessile, densely many-flowered, about 4 mm in diameter, the bracteoles linear-lanceolate, about 2 mm long, prominently ciliate. Flowers minute, shortly stalked. Achenes 0.8 mm long.

PANAY, Antique Province, Culasi, *Bur. Sci. 32396* (type), *32407, 32438, 32538 McGregor,* May 24 and June 14, 1918, in damp forests, altitude 800 to 1,300 meters.

This species is very similar in appearance to *Elatostema filicaule* C. B. Rob., from which it is easily distinguished by its hirsute stems and the hirsute midrib and nerves on the lower surface of the leaves.

ELATOSTEMA ZAMBOANGENSE sp. nov.

Herba erecta, ramis et petiolis et pedunculis dense pallide pubescentibus; foliis plerumque oblongo-ovatis, 7 ad 13 cm longis, in siccitate viridibus, chartaceis ad subcoriaceis, valde inaequilateralibus, utrinque cystolithis numerosis perspicuis instructis, apice acuminatis, margine sursum grosse dentatis; receptaculis ♂ axillaribus, solitariis, pedunculatis, 1 ad 1.5 cm diametro, pedunculo usque ad 2 cm longo, bracteis exterioribus pubescentibus, late rotundatis, bracteolis sepalisque glabris.

An erect, simple herb, attaining a height of 35 cm, the stems, very short petioles, and peduncles rather densely pubescent with short, somewhat appressed, pale hairs. Leaves variable, green when dry, chartaceous to subcoriaceous, very inequilateral, mostly oblong-ovate, 7 to 13 cm long, 3 to 5.5 cm wide, both surfaces with very short, numerous, irregularly disposed, elongated cystoliths, distinctly visible to the naked eye, the apex somewhat acuminate, base broadly rounded on one side, narrowly rounded on the other and laterally cordate, margins entire near the base, rather coarsely toothed above, the teeth broadly triangular; lateral nerves above the basal ones 3 or 4 on each side of the midrib, very prominent on the lower surface, the reticulations lax, prominent; stipules linear-lanceolate, acuminate, 1 to 1.2 cm long. Staminate receptacles axillary, solitary, 1 to 1.5 cm in diameter, their peduncles up to 2 cm long; outer bracts pubescent, apparently reniform and more or less grown together, broadly rounded, about 1 cm wide, somewhat pubescent externally and with numerous, very densely disposed cystoliths; bracteoles narrowly oblong, membranaceous, 4 mm long, glabrous. Staminate flowers very numerous, their pedicels 3 to 4 mm long, glabrous. Sepals 4, membranaceous, glabrous, oblong, two of them distinctly cucullate and more or less corniculate, 2 to 2.5 mm long.

MINDANAO, Zamboanga District, Sax River, back of San Ramon, *Merrill 8228*, November 27, 1911, in a damp, shaded ravine, altitude about 200 meters.

Among the Philippine species with peduncled staminate receptacles this species is apparently most closely allied to *Elatostema carinoi* W. R. Shaw, but is readily distinguished by its pubescent stems and its much elongated pubescent peduncles.

ELATOSTEMA ACUMATISSIMUM sp. nov.

Herba erecta, circiter 50 cm alta, ramulis junioribus pubescentibus, foliis subtus ad costa nervisque parce pilosis; foliis lanceolatis ad anguste lanceolatis, membranaceis, 9 ad 16 cm longis, leviter falcatis, apice tenuiter caudato-acuminatis, margine grosse dentatis, dentibus numerosis, plerumque leviter acuminatis; receptaculis ♂ axillaribus, solitariis, sessilibus, subglobosis, bracteis exterioribus late ovatis ad reniformi-ovatis, 9 mm latis, leviter carinatis, haud corniculatis; bracteolis spatulatis, hirsutis.

An erect, usually unbranched herb, about 50 cm high, the tips of the branches slightly pubescent, the leaves with scattered, rather weak, spreading, pale hairs on the lower surface, the nerves and reticulations beneath dark brown in contrast with the greenish epidermis. Leaves lanceolate to narrowly lanceolate, membranaceous, 9 to 16 cm long, 2 to 3.5 cm wide, olivaceous when dry, somewhat falcate, the upper surface with numerous, irregularly disposed, somewhat elongated cystoliths, these obsolete on the lower surface, the apex slenderly caudate-acuminate, the base slightly inequilateral, both sides of the lamina acute to obtuse, the margins very coarsely toothed, the teeth usually 20 or more on each side, somewhat ovate, their tips usually somewhat acuminate and often incurved, those of the acumen extending at least half way to the midrib; lateral nerves above the basal ones, about 10 on each side of the midrib, very prominent on the lower surface, the reticulations lax, prominent. Staminate receptacles sessile, axillary, solitary, subglobose, about 9 mm in diameter; outer bracts broadly ovate to reniform-ovate, about 9 mm wide, somewhat hirsute, more or less keeled, but scarcely corniculate, the inner bracts oblong, hirsute, keeled, about 4 mm long; bracteoles spatulate, hirsute, as long as the inner bracts. Staminate flowers numerous, pedicelled, the sepals oblong-elliptic, about 2 mm long, their apices prominently ciliate with long white hairs.

LUZON, Tayabas Province, Umiray, *Bur. Sci. 29015 Ramos & Edaño*, June 2, 1917, in damp forests along the river at low altitudes.

The alliance of this species is with *Elatostema angustatum* C. B. Rob. and *Elatostema contiguum* C. B. Rob., but more especially with the latter from which it is especially distinguished by its much larger and more prominently toothed, caudate-acuminate leaves.

ELATOSTEMA ROBINSONII sp. nov.

Herba glabra, erecta, ramosa, 15 ad 30 cm alta; foliis numerosis, chartaceis, viridibus, oblongo-ovatis ad oblongo-ellipticis, sessilibus, 7 ad 15 mm longis, utrinque cystolithis numerosis instructis, acutis, basi 3-plinerviis, inaequilateralibus, margine in ½ inferiore parte integris, superne dentatis, dentibus paucis; inflorescentiis ♂ axillaribus, solitariis, in siccitate flavido-viridibus, brevissime pedicellatis, 5 mm diametro; bracteis exterioribus late ovatis, carinatis, vix corniculatis, vel admodum obscure corniculatis.

An erect, much-branched, glabrous herb, 15 to 30 cm high, the stems apparently succulent when fresh, hard when dry, and about 4 mm in diameter, somewhat sulcate; lower branches up to 20 cm in length, yellowish green when dry. Leaves numerous, chartaceous, green when dry, oblong-ovate to oblong-elliptic, sessile, 7 to 15 mm long, 4 to 7 mm wide, green when dry, both surfaces with numerous, large, irregularly disposed cystoliths, apex acute, base inequilateral, 3-plinerved, one side rounded or obtuse, the other acute, the margins entire in the lower one-half, above with 3 or 4 teeth on one side and 3 to 5 on the other, the teeth distinct, blunt, usually less than 1 mm long; stipules linear-lanceolate, 2 to 2.5 mm long. Staminate receptacles axillary, solitary, numerous, yellowish green when dry, very shortly pedicellate, turbinate, about 5 mm in diameter, with as many as 14 flowers, but few developing at one time; pedicels about 1 mm long; outer two bracts very broadly obovate, densely longitudinally striate, broadly rounded, 3.5 to 4 mm long, keeled, firm, sometimes very slightly corniculate; bracteoles membranaceous, oblong-obovate, about 3 mm long, somewhat thickened in the median part. Pedicels in anthesis 2 mm long. Sepals 4, membranaceous, oblong to elliptic-oblong, 2 mm long, two distinctly corniculate at their apices, the other two acute.

LUZON, Ifugao Subprovince, Mount Polis, *Bur. Sci. 19727 McGregor*, January 30, 1913, altitude not indicated.

This species apparently belongs in the group with *Elatostema benguetense* C. B. Rob., but is entirely different from that and all other species known to me; the yellowish-green color of the branchlets and staminate receptacles is very characteristic. The late C. B. Robinson has indicated on the sheet "*Elatostema* sp. nov. = Vidal 3857."

ELATOSTEMA PILOSUM sp. nov.

Herba erecta, sublignosa, ramosa, saltem 40 cm alta, ramulis densissime pilosis, subtus foliis ad costa nervisque perspicue

longe pilosis; foliis oblongis, chartaceis, 1 ad 1.5 cm longis, utrinque angustatis, apice leviter acuminatis, basi inaequilateralibus, margine deorsum integris, superne utrinque 2- vel 3-dentatis; inflorescentiis ♂ axillaribus, solitariis, sessilibus, circiter 4 mm diametro; bracteis exterioribus oblongo-ovatis, acutis, pilosis, haud carinatis; bracteolis linearis, ciliatis.

An erect, woody, much-branched plant, at least 40 cm high, the branchlets densely cinereous-pilose with long spreading hairs, the leaves conspicuously pilose beneath on the midrib and nerves. Old stems about 5 mm in diameter, sparingly pilose with weak hairs. Leaves oblong, chartaceous, 1 to 1.5 cm long, 4 to 7 mm wide, narrowed to the inequilateral base and to the somewhat acuminate apex, the upper surface dark brownish-olivaceous when dry, with numerous irregularly scattered short cystoliths, the margin in the lower two-thirds entire, in the upper one-third usually with two teeth on the narrower side and three on the broader side, base inequilateral, one side of the lamina longer than the other, acute to obtuse, the narrower side acute; stipules linear-lanceolate, about 1.2 mm long. Staminate heads solitary, axillary, sessile, about 4 mm in diameter, the flowers in each head up to 20; outer two bracts oblong-ovate, acute, pilose, 2 mm long, not keeled or corniculate; bracteoles linear, ciliate, membranaceous, 1.5 mm long; pedicels ciliate, as long as the bracteoles. Sepals oblong, membranaceous, ciliate, 1.3 mm long, acute or obtuse, not keeled or corniculate.

LUZON, Nueva Vizcaya Province, near Imugan, *Bur. Sci. 20060 McGregor,* December 29, 1912.

In habit and general appearance this species is similar to *Elatostema halconense* C. B. Rob., from which it differs especially in the dense indumentum on the branchlets, the midrib and nerves beneath being pilose with long spreading hairs, and its distinctly smaller, less prominently toothed leaves.

ELATOSTEMA SUBORBICULARE sp. nov.

Herba prostrata, ramosa, usque ad 15 cm longa, ramulis leviter adpresse hirsutis; foliis orbicularis ad orbiculari-ovatis, inaequilateralibus, 5 ad 13 mm longis, apice rotundatis vel obtusis, basi valde inaequilateralibus, margine superne utrinque paucidentatis; receptaculis ♂ axillaribus, solitariis, sessilibus, circiter 5 mm diametro, bracteis exterioribus obovatis, leviter hirsutis, perspicue carinatis, vix corniculatis, interioribus cum bracteolis oblongo-spatulatis et cum sepalis plus minusve hirsutis vel ciliatis.

An apparently prostrate, more or less branched herb, the main

stems at least 15 cm long, the branches 1.5 to 5 cm long, slender, sparingly appressed hirsute. Leaves suborbicular to orbicular-obovate, inequilateral, 5 to 13 mm long, brownish when dry, the apex rounded or obtuse, base strongly inequilateral and shallowly laterally cordate, entire below, the upper two-thirds on the broader side with about 4 rounded teeth, the narrower side in the upper one-third with 2 or 3 similar teeth, upper surface with irregularly scattered, distinct, elongated cystoliths, these obsolete on the lower surface; stipules oblong-elliptic, membranaceous, glabrous, usually obtuse to acute, 3 mm long. Staminate receptacles axillary, solitary, sessile, about 5 mm in diameter; bracts broadly obovate, about 5 mm long, sparingly hirsute, prominently keeled, scarcely corniculate, the apex broadly rounded, the inner ones thinner, somewhat hirsute, truncate, keeled, as long as the outer ones, about one-half as wide; bracteoles membranaceous, hirsute, oblong-spatulate, narrowly oblong-obovate, 4 mm long, obtuse; sepals oblong-elliptic, membranaceous, about 2 mm long, two acute, two distinctly corniculate, all sparingly ciliate at their apices. Pistillate receptacles axillary, solitary, 5 mm in diameter.

LUZON, Ifugao Subprovince, Mount Polis, *Bur. Sci. 19729 McGregor*, February 14, 1913.

The alliance of this species is with *Elatostema obovatum* Wedd., from which it is especially distinguished by its smaller, suborbicular leaves, which have much fewer teeth.

ELATOSTEMA DIVERSILIMBUM sp. nov.

Herba erecta, usque ad 30 cm alta, e basi decumbente, simplex vel leviter ramosa, caulis adpresse hirsutis; foliis valde variabilis, 1 ad 9 cm longis, 1 ad 4 cm latis, inaequilateralibus, plerumque obovatis ad oblongo-obovatis, glabris, cystolithis utrinque numerosis, apice acuminatis, basi 3-plinerviis, leviter inaequilateraliter cordatis, margine grosse dentato-serratis; receptaculis axillaribus, solitariis, sessilibus, 8 ad 10 diametro, bracteis exterioribus rotundatis vel reniformibus, glabris, haud corniculatis, bracteolis membranaceis, leviter ciliatis, spatulatis, 3 ad 4 mm longis; sepalis 2 ad 2.5 mm longis, 2 distincte corniculatis.

An erect or ascending herb from a decumbent base, up to 30 cm long, simple or sparingly branched, the stems succulent, when dry brownish, more or less hirsute. Leaves chartaceous, greenish-olivaceous when dry, exceedingly variable, strongly inequilateral, 1 to 9 cm long, 1 to 4 cm wide, the smaller ones on young plants and on the few branchlets, mostly obovate to oblong-obovate, distinctly acuminate, base somewhat narrowed, obtuse

and laterally cordate, the margins coarsely dentate-serrate, the teeth on the broader side 8 to 10, on the narrower side 4 to 6; nerves and reticulations prominent on the lower surface, the latter lax, brownish, the base 3-plinerved. Pistillate and staminate receptacles axillary, solitary, sessile, 8 to 10 mm in diameter. Outer bracts rounded to reniform, glabrous, not at all corniculate, the inner ones obovate to oblong-obovate; bracteoles spatulate, membranaceous, 3 to 4 mm long, slightly ciliate above. Sepals of the staminate flowers membranaceous, 2 to 2.5 mm long, two of them distinctly corniculate.

MINDANAO, Zamboanga District, mountains back of Zamboanga, *Merrill 9127*, December 6, 1911, in damp shaded ravines along small streams on banks and ledges, altitude 200 to 400 meters.

This species is most strikingly characterized by its very diverse leaves, which vary enormously in size, even on the same plant; in the larger specimens they are as much as 9 cm long and 4 cm wide, but on some of the smaller specimens and on the branches they are very much smaller, sometimes not more than 1 cm long and wide. The general alliance of the species appears to be with *Elatostema carinoi* W. R. Shaw.

ELATOSTEMA APPENDICULATUM sp. nov.

Herba erecta e basi decumbente, usque ad 30 cm alta, ramis et subtus foliis ad costa nervisque hirsutis; foliis membranaceis, inaequilateralibus, leviter falcatis, oblongis, 6 ad 11 cm longis, acutis, basi inaequilateralibus, 3-plinerviis, margine grosse dentato-serratis, pagina superiore cystolithis multis instructis, in siccitate olivaceis, nervis reticulisque subtus brunneis, valde perspicuis; receptaculis ♂ axillaribus, solitariis, sessilibus, subglobosis, 6 ad 8 mm diametro, bracteis exterioribus orbicularibus, leviter ciliatis, 8 mm diametro, longe corniculatis, bracteolis membranaceis, oblongis ad oblanceolatis, perspicue longe ciliatis, dorso longe tenuiter appendiculato; sepalis 2 ad 2.5 mm longis, sursum ciliato-hirsutis, 2 distincte corniculatis.

An erect unbranched herb, 25 to 30 cm high, the stems and the leaves beneath on the nerves and reticulations conspicuously hirsute with spreading, pale or brown hairs. Leaves membranaceous, olivaceous or greenish-olivaceous when dry, somewhat falcate, oblong, inequilateral, 6 to 11 cm long, 2 to 3 cm wide, the prominent nerves and lax reticulations on the lower surface dark brown in contrast to the greenish epidermis, the apex acute, base inequilateral, rounded on one side, acute on the other, 3-plinerved, the margins in the lower one-fourth entire, otherwise

rather coarsely dentate-serrate, usually 10 to 12 teeth on each side, the upper surface glabrous, with numerous, irregularly disposed, elongated cystoliths; petioles 2 mm long or less; stipules lanceolate, about 8 mm long. Staminate receptacles axillary, solitary, sessile, globose, 6 to 8 mm in diameter, the two external bracts orbicular, somewhat ciliate, broadly rounded, prominently corniculate, the appendage 2 to 3 mm long; bracteoles variable, oblong to oblanceolate, membranaceous, 4 to 5 mm long, prominently ciliate with long white hairs and with a very slender, ciliate, 2 to 3 mm long appendage from the back at or above the middle. Sepals of the staminate flowers 4, membranaceous, ciliate above, 2 to 2.5 mm long, two of them distinctly corniculate.

LUZON, Tayabàs Province, Mount Tuloag, *Bur. Sci. 29129 Ramos & Edaño*, May 25, 1917, along small streams in damp forests at low altitudes.

The alliance of this species is not entirely clear, although, with the exception of the indumentum and its bract and floral characters, it resembles *Elatostema carinoi* W. R. Shaw. It is readily distinguished by its laxly reticulate leaves, the nerves and reticulations being dark brown in contrast to the green epidermis, and distinctly ciliate, as well as by its peculiarly appendaged bracteoles.

ELATOSTEMATOIDES C. B. Robinson

ELATOSTEMATOIDES SAMARENSE sp. nov.

Planta erecta, saltem 50 cm alta, sublignosa; foliis chartaceis vel subcoriaceis, inaequilateraliter oblongo-ovatis, circiter 15 cm longis et 6 cm latis, apice tenuiter acuminatis, margine distanter grosse dentatis, inferne plerumque integris vel subintegris, subtus ad nervis et nervulis perspicue molliter pilosis; cymis ♂ sessilibus, circiter 1.5 cm diametro, floribus numerosis, confertis, perianthii segmentis 5, bracteolis oblongo-lanceolatis, pubescentibus.

An erect, apparently unbranched, woody plant, at least 50 cm high, the stems nearly glabrous below, above more or less pilose with rather long spreading hairs. Leaves chartaceous or subcoriaceous, inequilateral, oblong-ovate, about 15 cm long and 6 cm wide, dark brown when dry, the upper surface with numerous, irregularly disposed, short cystoliths, the lower surface softly pilose with rather long spreading hairs on the nerves and reticulations, apex slenderly acuminate, base narrowed, inequilateral, rounded on the broader side, acute or somewhat rounded on the narrower side, the more prominent nerve on the narrower side leaving the midrib well above the base, margins distantly

and rather coarsely toothed, at least in the upper part, below often entire or nearly so, nerves prominent, arched, anastomosing, the primary ones above the basal pair 3 or 4 on each side of the midrib. Staminate cymes axillary, sessile, about 1.5 cm in diameter, the flowers numerous, crowded, the subtending bracteoles oblong-lanceolate, 1.5 to 2 mm long, pubescent; pedicels pubescent, about 1.5 mm long. Perianth segments of the staminate flowers 5, oblong to oblong-elliptic, 2 mm long, somewhat ciliate, some of them distinctly corniculate or keeled-corniculate at the apex.

SAMAR, Yabong, *Bur. Sci. 17468 Ramos,* March 16, 1914, in damp forests near small streams at low altitudes.

The alliance of this is manifestly with *Elatostematoides manillense* C. B. Rob., from which it is especially distinguished by its prominently pilose midrib, nerves, and reticulations on the lower surface of the leaves.

BOEHMERIA Jacquin

BOEHMERIA ZOLLINGERIANA Wedd. in Ann. Sci. Nat. Bot. IV 1 (1854) 201, DC. Prodr. 16[1] (1869) 208.

LUZON, Ilocos Norte Province, Mount Nagapatan, *Bur. Sci. 33129 Ramos,* August, 1918; Bangui, *Bur. Sci. 27478 Ramos,* March, 1917: Pangasinan Province, Umingan, *Bur. Sci. 18322 Otanes,* May, 1914, in ravines and on open slopes, ascending to an altitude of 550 meters.

Weddell's species was based on a Javan specimen. It has been also recorded from Formosa by C. H. Wright,[2] who, however, identified the Formosan material from the description alone. The Philippine specimens agree closely with our rather full series of Formosan ones.

ARISTOLOCHIACEAE

ARISTOLOCHIA Tournefort

ARISTOLOCHIA MEMBRANACEA sp. nov. § *Diplolobus.*

Frutex parvus, ut videtur erectus, ramulis 1 ad 2 mm diametro; foliis membranaceis, oblongis ad oblongo-lanceolatis, 8 ad 15 cm longis, acuminatis, basi cordatis, lobis rotundatis, utrinque ad costa nervisque leviter pubescentibus, nervis utrinque 8 ad 10, tenuibus; inflorescentiis axillaribus, paucifloris; floribus circiter 3 cm longis, leviter pubescentibus; capsulis obovoideis, 1 cm longis, glabris.

[2] Journ. Linn. Soc. Bot. 26 (1899) 488.

Slender, apparently erect, the branchlets somewhat zigzag, 1 to 2 mm in diameter, pubescent with short spreading hairs. Leaves membranaceous, oblong to oblong-lanceolate, 8 to 15 cm long, 3 to 5 cm wide, mostly equilateral, base broadly rounded and prominently cordate, the sinus up to 1 cm wide and deep, rounded, narrowed upward to the acuminate apex, olivaceous and shining when dry, both surfaces sparingly pubescent on the midrib and nerves; basal nerves usually two pairs, not however sharply distinguished from the lateral nerves, all of the nerves rather slender, distinct, curved, anastomosing, up to 10 on each side of the midrib; petioles 3 to 5 mm long, somewhat pubescent. Inflorescences axillary, about as long as the petioles, somewhat pubescent, few-flowered, but one flower developing at a time; bracts oblong to spatulate, 3 to 5 mm long. Flowers about 3 cm long, pubescent externally with scattered spreading hairs, the ovarian part of the tube about 4 mm long, the globose part about 4 mm long, somewhat curved above the globose part, the tube about 10 mm long, the short lobe broadly ovate, rounded, about 4 mm long, the long one about 15 mm in length, acute or acuminate. Stamens apparently 8. Column with 6 flattened lobes. Capsule glabrous, obovoid, about 1 cm long. Seeds triangular in outline, 3 mm long, concavo-convex; convex surface distinctly papillate.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33338 Ramos*, August 22, 1918, on dry slopes and ridges, altitude about 350 meters.

This species is allied to *Aristolochia sericea* Blanco (*A. imbricata* Mast.) from which it is distinguished especially by its prominently cordate, thinner, less pubescent leaves, its much less pubescent flowers, and its glabrous capsules.

CARYOPHYLLACEAE

STELLARIA Linnaeus

STELLARIA MEDIA (Linn.) Cyr. Char. Comm. (1784) 36; Edgw. & Hook. f. in Hook. f. Fl. Brit. Ind. 1 (1784) 230.

Alsine media Linn. Sp. Pl. (1753) 272.

LUZON, Benguet Subprovince, Baguio, *Merrill 9699*, May, 1914; Pauai, *Bur. Sci. 31861 Santos*, May 4, 1914, altitude 1,500 to 2,300 meters.

A universally distributed weed in the north temperate regions, a native of Asia; unquestionably a recently introduced plant in Benguet.

MENISPERMACEAE

HAEMATOCARPUS Miers

HAEMATOCARPUS SUBPELTATUS sp. nov.

Frutex scandens, glaber; foliis coriaceis, basi rotundatis et leviter peltatis, oblongis ad oblongo-ellipticis, 9 ad 14 cm longis, apice tenuiter acuminatis; inflorescentiis ♂ axillaribus, racemosis vel depauperato-paniculatis, 3 ad 8 cm longis; floribus circiter 8 mm diametro, sepalis plerumque 12, lineolatis, exterioribus minoribus; petalis 6, quam sepalis interioribus minoribus, basi inflexo-auriculatis.

A scandent woody vine, glabrous except the very slightly pubescent sepals, the branches up to 4 mm in diameter. Leaves coriaceous, oblong to oblong-elliptic, pale and shining when dry, 9 to 14 cm long, 3.5 to 5.5 cm wide, base rounded and slightly peltate, the petiole inserted 1 to 2 mm from the margin, the apex rather slenderly acuminate; basal nerves 2 on each side of the midrib, nearly as prominent as the midrib and extending nearly to the apex, the secondary nerves slender, spreading at nearly right angles and with the reticulations distinct on both surfaces; petioles about 2 cm long. Staminate inflorescences axillary, solitary, racemose or depauperate-paniculate, 3 to 8 cm long. Staminate flowers yellow, about 6 mm in diameter, their pedicels 2 to 5 mm long. Outer 2 or 3 sepals less than 1 mm long, broadly ovate, the next three sepals ovate, obtuse, about 1.2 mm long, the inner six elliptic, rounded, 3 to 3.5 mm long, all of the sepals prominently lineolate, their margins slightly ciliate. Petals 6, somewhat thicker than the sepals, broadly elliptic to elliptic-obovate, rounded, 2.5 to 3 mm long, base inflexed-auriculate, stamens 6, free, their filaments 1 mm long; anthers broadly ovate, acuminate, 1 to 1.2 mm long, the connectives broad, produced.

LUZON, Camarines Province, Paracale, *Bur. Sci. 33750 Ramos & Edaño,* December 22, 1918, in forests along streams at low altitudes.

This is the first representative of this small genus to be found in the Philippines; its alliance is with *Haematocarpus comptus* Miers, from which it is distinguished by its much shorter racemose, axillary inflorescences, and its smaller leaves which are rounded and slightly peltate at the base.

ANNONACEAE

ARTABOTRYS R. Brown

ARTABOTRYS MONOGYNUS sp. nov.

Frutex scandens, inflorescentiis exceptis glaber; foliis subcoriaceis, oblongo-ellipticis, nitidis, usque ad 18 cm longis, obtuse

acuminatis, basi acutis, nervis utrinque circiter 12, patulis, distinctis, anastomosantibus; inflorescentiis usque ad 5 cm longis, paucifloris; petalis omnibus aequalibus, linearis, basi inflatis, circiter 1.6 cm longis, pubescentibus; carpellis solitariis, glabris.

A scandent shrub, glabrous except the inflorescence. Branches and branchlets terete, smooth, dark reddish-brown when dry. Leaves subcoriaceous, rather pale when dry, of the same color and shining on both surfaces, oblong-elliptic, 15 to 18 cm long, 5 to 5.7 cm wide, subequally narrowed to the acute base and to the shortly blunt-acuminate apex; lateral nerves about 12 on each side of the midrib, spreading, distinct, anastomosing, the primary reticulations lax; petioles dark-colored and rugose when dry, 5 to 8 mm long. Inflorescences leaf-opposed, up to 5 cm long including the flowers, few-flowered, stout, the peduncle 3 to 4 mm in diameter, sparingly pubescent, ultimately glabrous, strongly hooked, slightly compressed. Flowers white, their pedicels usually about 1 cm long, thickened upward, slightly pubescent. Sepals broadly ovate, thickly coriaceous, black when dry, prominently acuminate, about 3.5 mm long, very slightly pubescent with widely scattered hairs. Petals all similar, the inflated basal portions broadly ovate, 3.5 to 5 mm in diameter, rather densely pubescent, the linear limb up to 16 mm long, about 1.5 mm wide, somewhat pubescent, blunt. Stamens numerous, nearly 2 mm long. Carpel solitary, broadly ovoid, narrowed upward, glabrous, somewhat angled, 1-celled, 2-ovuled. Fruit ellipsoid, brown, about 2 cm long.

LUZON, Zambales Province, Mount Canayayan, near Castillejos, *Bur. Sci. 26826 Edaño,* December, 1916, in forests, altitude about 50 meters.

A species manifestly in the alliance with *Artabotrys suaveolens* Blume, but with larger leaves. It is readily distinguished from all described species by its solitary carpels.

ARTABOTRYS CAGAYANENSIS sp. nov.

Frutex scandens, floribus exceptis glaber; foliis oblongis ad oblongo-oblanceolatis, usque ad 20 cm longis, subcoriaceis, in siccitate pallidis, basi acutis, apice distincte acuminatis, nervis utrinque 12 ad 14, distinctis; floribus solitariis, flavidis, circiter 5 cm diametro, petalis utrinque dense pubescentibus, interioribus obovatis, circiter 2.5 cm longis et 1.5 cm latis, exterioribus ovatis ad elliptico-ovatis, 3 cm longis et 2 cm latis, obtusis; carpellis circiter 14, pubescentibus, 2 mm longis.

A scandent shrub, glabrous except the flowers. Branches terete, rugose, brownish or reddish-brown. Leaves oblong to

oblong-oblanceolate, subcoriaceous, rather pale and shining when dry, 16 to 20 cm long, 3.5 to 7 cm wide, base acute, apex distinctly acuminate, the acumen 1 cm long or less, blunt; lateral nerves 12 to 14 on each side of the midrib, distinct, curved, anastomosing, the reticulations slender; petioles reddish-brown, about 8 mm long. Hooks rather stout, strongly recurved, about 2 cm to the bend, glabrous. Flowers yellow, solitary, about 5 cm in diameter, their pedicels densely pubescent, 2 to 2.5 cm long. Sepals coriaceous, narrowly ovate, obtuse, densely pubescent, about 11 mm long and 8 mm wide. Petals spreading above the united portions, the flowers about 5 cm in diameter, coriaceous, rather densely pubescent on both surfaces, the outer ones ovate to elliptic-ovate, obtuse, about 3 cm long and 2 cm wide, the inner ones obovate, about 2.5 cm long and 1.5 cm wide, obtuse or obtusely acuminate, the inflated base formed by the united lower parts of the petals about 8 mm in diameter. Stamens indefinite, 2 mm long. Carpels about 14, oblong, about 2 mm long, pubescent.

LUZON, Cagayan Province, Peñablanca, *Adduru 136*, May 28, 1917, *Bur. Sci. 22719 Castillo*, April 24, 1915, on forested slopes at low altitudes.

A species well characterized among the Philippine forms by its unusually large flowers and broad petals.

GONIOTHALAMUS Hooker f. and Thomson

GONIOTHALAMUS LANCIFOLIUS sp. nov.

Arbor circiter 7 m alta, novellis et floribus exceptis glabra; foliis lanceolatis, chartaceis, usque ad 33 cm longis et 5 cm latis, nitidissimis, acuminatis, basi acutis, nervis utrinque 25 ad 30, distinctis; floribus axillaribus et caulinis, solitariis, tenuiter pedunculatis, petalis exterioribus ovato-lanceolatis ad oblongo-lanceolatis, 7 ad 8 cm longis, acuminatis, extus ad basi dense fulvo-pubescentibus, interioribus circiter 1.2 cm longis, densissime pallide pubescentibus.

A tree, about 7 m high, entirely glabrous except the growing tips of the branchlets and parts of the flowers. Branches terete, pale brownish, glabrous. Leaves chartaceous, lanceolate, 19 to 33 cm long, 3 to 4 cm wide, the upper surface greenish olivaceous, very strongly shining, the lower somewhat brownish, the apex slenderly acuminate, base acute; primary lateral nerves 25 to 30 on each side of the midrib, slender, distinct, anastomosing, the reticulations lax; petioles about 8 mm long. Flowers 7 to 8 cm long, greenish-yellow, dark-brown when dry, odorless, solitary, axillary and from tubercles on the trunk, their pedicels 2.5 to 3

cm long, often appressed fulvous-pubescent at the base. Calyx about 1 cm in diameter, somewhat pubescent, the lobes short. Outer three petals ovate-lanceolate to oblong-lanceolate, 7 to 8 cm long, 2.5 to 3.5 cm wide, narrowed upward to the acuminate apex, glabrous except for the densely fulvous-pubescent basal portion outside; inner three petals about 1.2 mm long, conniving over the stamens, densely pale-pubescent externally.

LUZON, Pangasinan Province, Mount San Isidro, Labrador, *Bur. Sci. 29992 Fénix*, November 4, 1917, in forests near the summit, altitude about 400 meters.

This species belongs in the group with *Goniothalamus malayanus* Hook. f. & Th., but is well characterized by its elongated, narrow, strongly shining leaves, and its large, solitary, axillary and cauline flowers.

GONIOTHALAMUS LONGISTYLUS sp. nov.

Arbor parva, floribus exceptis glabra; foliis oblongis, in siccitate olivaceis, usque ad 16 cm longis, acuminatis, basi acutis, nervis utrinque 9 ad 11, patulis, tenuibus; inflorescentiis trunciflóris, floribus pedicellatis, fasciculatis, circiter 4 cm longis, petalis exterioribus glabris, oblongo-ovatis, acuminatis, interioribus late ovatis, 2 cm longis, extus leviter, intus densissime pubescentibus; carpellis numerosis, oblongis, pubescentibus, 2 mm longis, stylis valde elongatis, falcatis, acuminatis, 4 ad 4.5 mm longis.

A small tree, glabrous except the flowers and the slightly pubescent fruits. Branches and branchlets slender, terete, black when dry. Leaves oblong, olivaceous, chartaceous, 13 to 16 cm long, 3.5 to 4.5 cm wide, shining, of the same color on both surfaces, subequally narrowed to the acuminate apex and to the acute base; lateral nerves slender, 9 to 11 on each side of the midrib, spreading, anastomosing, the reticulations lax; petioles black when dry, about 1 cm long. Flowers black when dry, reddish-pink, fascicled on small tubercles on the trunk, about 4 cm long, their pedicels about 2 cm in length. Sepals glabrous, broadly ovate, obtuse, obscurely reticulate, about 8 mm long. Outer three petals submembranaceous, glabrous, oblong-ovate, prominently acuminate, about 4 cm long and 2 cm wide, narrowed upward; inner three petals thickly coriaceous, scarcely clawed, cohering, broadly ovate, acuminate, about 2 cm long and 1.3 cm wide, outside sparingly pubescent, inside very densely so. Stamens indefinite, about 2 mm long, the connectives rounded. Carpels many, oblong, pubescent, 2 mm long; styles simple, cylindric, falcate, 4 to 4.5 mm long, glabrous, acuminate. Fruits eight or more on each peduncle, the peduncles up to 6 cm in

length, the fruits oblong or oblong-obovoid, 4 to 4.5 cm long, 2 to 2.5 cm in diamter, obtuse, base acute, glabrous, black or dark-brown when dry, 1- or 2-seeded.

LUZON, Tayabas Province, Mount Dingalan, *Bur. Sci. 26639 Ramos & Edaño,* August 24, 1916, on forested slopes.

This strongly marked species is not closely allied to any other known Philippine form. It is readily recognized by its cauline, fascicled flowers and its greatly elongated, falcate styles.

MITREPHORA Hooker f. and Thomson

MITREPHORA CAGAYANENSIS sp. nov.

Frutex vel arbor parva (4 m alta fide Castillo), plus minusve ferrugineo-pubescentibus; foliis chartaceis, oblongo-ovatis ad oblongo-ellipticis, usque ad 17 cm longis, basi acutis, apice obtuse acuminatis, nervis utrinque circiter 13, distinctis; floribus paucis, circiter 5 cm diametro, petalis exterioribus lanceolatis, acuminatis, patulis, leviter pubescentibus, circiter 3 cm longis, interioribus circiter 9 mm longis, longe unguiculatis, lamina latissime hastato-ovata, circiter 4 mm longa, intus densissime ciliato-hirsuta.

A shrub or small tree, 4 m high according to Castillo, the branchlets, inflorescences, and lower surface of the leaves on the midrib and nerves more or less ferruginous-pubescent or brownish-pubescent with short hairs. Branches slender, terete, glabrous, rugose when dry, brownish-gray. Leaves chartaceous, oblong-ovate to oblong-elliptic, olivaceous and somewhat shining when dry, 12 to 17 cm long, 5 to 9 cm wide, base acute, apex obtusely acuminate, the upper surface glabrous except the pubescent midrib; lateral nerves about 13 on each side of the midrib, distinct, curved; petioles pubescent, stout, 5 mm long or less. Inflorescences leaf-opposed, short, few-flowered, but a single flower developing at one time, ferruginous-pubescent, the simple axis 5 mm long or less, the pedicels shorter. Bracts ovate, densely pubescent, prominently acuminate, about 6 mm long. Flowers yellow, about 5 cm in diameter. Sepals similar to the bracts in size, shape, and appearance. Outer petals spreading, lanceolate, acuminate, dark-brown or nearly black when dry, appressed-pubescent on both surfaces with rather scattered hairs, the hairs much fewer on the inside, about 3 cm long and 8 mm wide. Inner petals erect, arched, about 9 mm long, their claws about 6 mm long and 1.2 mm wide, glabrous or slightly ciliate, the limbs broadly ovate-hastate, 3 to 4 mm long, 4 to 5 mm wide, externally pubescent with short hairs, inside densely ciliate with dark-brown hairs, acute, base lobed. Stamens inde-

finite, about 1 mm long. Carpels about 8, oblong, appressed-hirsute, about 1 mm long; ovules about 4.

LUZON, Cagayan Province, near Tuguegarao, *Bur. Sci. 22733 Castillo*, April 15, 1915, in thickets at low altitudes; Peñablanca, *Adduru 143*, sterile, June, 1917.

This species is well characterized by its lanceolate, elongated exterior petals and its long-clawed interior ones, the limbs of the latter being broadly ovate-hastate.

OXYMITRA Hooker f. and Thomson

OXYMITRA MULTINERVIA sp. nov.

Frutex scandens, partibus vetustioribus glaber vel subglaber; foliis ellipticis ad oblongo-ellipticis, subcoriaceis, in siccitate brunneis, nitidis, usque ad 20 cm longis, utrinque late rotundatis vel apice leviter retusis; nervis utrinque circiter 22, subtus valde prominulis; fructibus ellipsoideis ad obovoideis, 1 ad 1.5 cm longis, glabris.

A scandent shrub, in age nearly glabrous. Branches terete, brownish, nearly smooth, glabrous, the branchlets sparingly pubescent. Leaves elliptic to oblong-elliptic, subcoriaceous, brown when dry, shining, the lower surface a little paler than the upper, not at all glaucous, 13 to 20 cm long, 8 to 12 cm wide, broadly rounded at both base and apex, the lower surface very sparingly pubescent along the midrib and nerves; lateral nerves about 22 on each side of the midrib, very prominent on the lower surface, the reticulations subparallel, distinct; petioles 1 to 1.5 cm long. Fruits dark-brown when dry, glabrous, hard, ellipsoid to obovoid, 1 to 1.5 cm long, their pedicels 8 to 12 mm in length.

CATANDUANES, on forested slopes back of Calolbong, *Bur. Sci. 30456 Ramos*, December 10, 1917.

This species somewhat resembles *Oxymitra longiflora* Merr. and the very closely allied and perhaps identical *O. obtusifolia* Elm., but is readily distinguished by its much more numerous lateral nerves.

OXYMITRA PLATYPHYLLA sp. nov.

Frutex scandens partibus junioribus parce ferrugineo-pubescentibus; foliis obovatis ad ellipticis, usque ad 20 longis et 12 cm latis, basi cordatis, interdum leviter inaequilateralibus, apice late rotundatis, truncatis, vel obscure brevissime apiculatis, nervis utrinque circiter 13, subtus valde prominentibus, supra, costa exceptis, glabris, subtus ad costa nervisque leviter pubescentibus; fructibus numerosis, pedicillatis, subglabris, ovoideo-globosis, circiter 8 mm diametro, obscure apiculatis.

A scandent shrub, the younger parts, petioles, and leaves on the costa above and on the costa, nerves, and reticulations beneath more or less ferruginous-pubescent. Branches terete, slender, very dark-brown, somewhat rugose. Leaves obovate to elliptic, subcoriaceous, 14 to 20 cm long, 8 to 12 cm wide, base broadly rounded, distinctly cordate, sometimes slightly inequilateral, apex rounded, truncate, or shortly and obscurely apiculate, the upper surface olivaceous, shining, glabrous except the midrib, the lower surface brown, at times slightly glaucous; lateral nerves about 13 on each side of the midrib, very prominent on the lower surface, straight or slightly curved, anastomosing near the margins, the primary reticulations subparallel, prominent; petioles stout, about 4 mm long, more or less pubescent, ultimately nearly glabrous. Infructescences axillary, the peduncles 2.5 to 3 cm long, dark-brown, ultimately glabrous, each bearing 20 to 25 subglobose to ovoid-globose fruits, the infructescences rather dense, globose, about 3 cm in diameter; fruits red when mature, acid, about 8 mm in diameter, sparingly pubescent, apiculate, dark-brown when dry, their pedicels about 8 mm long.

LUZON, Laguna Province, Mount Maquiling, along Molauin River, *For. Bur. 26360 Mabesa,* in forests, altitude 400 to 500 meters.

The alliance of this species is with *Oxymitra obtusifolia* Elm. and *O. longiflora* Merr., from which it is distinguished by its much broader leaves and nearly globose fruits.

PAPUALTHIA Diels

PAPUALTHIA HETEROPETALA sp. nov.

Frutex erectus, ramulis floribusque exceptis glaber; foliis oblongis ad oblongo-lanceolatis, usque ad 11 cm longis, chartaceis, acutis vel acuminatis, basi angustatis, leviter inaequilateralibus et minute oblique cordatis, nervis utrinque 10, perspicuis; floribus extra-axillaribus, solitariis vel fasciculatis, pedicellis circiter 12 mm longis; sepalis ovatis, acuminatis, 4 ad 5 mm longis; petalis infra connatis, 3 ovatis, 8 mm longis, sursum angustatis, acuminatis, 3 oblongis, 9 ad 10 mm longis, plerumque acutis; carpellis circiter 5.

An erect shrub, glabrous, except the young branchlets and flowers, the branches slender, terete, nearly black when dry, sparingly lenticellate. Leaves oblong to oblong-lanceolate, chartaceous, pale and shining when dry, 7 to 11 cm long, 2 to 4 cm wide, apex usually acuminate, sometimes acute, base narrowed and slightly inequilateral, usually minutely and obliquely cordate;

lateral nerves about 10 on each side of the midrib, slender, prominent, anastomosing, the reticulations lax, distinct; petioles black when dry, about 2 mm long. Flowers yellowish, extra-axillary, solitary or few in a fascicle, but one flower developing at a time, their pedicels slender, about 12 mm long, appressed-pubescent, supplied with one or two, oblong, 2 mm long bracts below the middle. Sepals ovate, sparingly ferruginous-pubescent, 3 mm wide, 4 to 5 mm long, prominently acuminate. Petals united for the lower 2 to 3 mm, very unequal, three of the lobes ovate, about 5 mm long and 3 mm wide, much narrowed above to the acuminate apex, the three alternating lobes oblong, 6 to 7 mm long, 2 to 2.5 mm wide, sparingly appressed-pubescent outside, slightly narrowed upward, usually acute. Stamens indefinite, about 1.4 mm long. Carpels about 5, oblong, 1 mm long, appressed-pubescent; ovules apparently 3; stigma capitate.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32853 Ramos*, July 26, 1918, in dry forests at low altitudes.

In vegetative characters this species is very similar to *Papualthia lanceolata* Merr., but differs radically in its floral characters, notably in the ovate, very prominently acuminate sepals and the very unequal petals, three of which are ovate and prominently acuminate, the three alternating ones oblong, longer, narrower, and usually acute.

PHAEANTHUS Hooker f. and Thomson

PHAEANTHUS PUBESCENS sp. nov.

Arbor parva, ramulis cinereo-pubescentibus, novellis ferrugineo-pubescentibus; foliis lanceolatis ad oblongo-lanceolatis, chartaceis, usque ad 18 cm longis, plus minusve acuminatis, basi acutis, nervis utrinque circiter 10, curvato-adscendentibus, supra in siccitate atro-brunneis, nitidis, glabris, subtus perspicue pubescentibus; fructibus oblongo-ovoideis, nigris, glabris, circiter 1.7 cm longis.

A tree, about 5 m high, more or less pubescent, the younger parts densely so. Branches terete, brownish, rugose, glabrous, the branchlets rather prominently cinereous-pubescent, the very young parts densely ferruginous-pubescent. Leaves lanceolate to oblong-lanceolate, chartaceous, 10 to 18 cm long, 2 to 5 cm wide, narrowed upward to the usually blunt-acuminate apex, the base acute, upper surface glabrous, blackish-brown when dry, shining, the lower somewhat paler, rather prominently cinereous-pubescent, the midrib densely so; lateral nerves about 10 on each side of the midrib, slender, curved-ascending, distinct; petioles pubescent, 3 to 6 mm long. Fruits oblong-ovoid,

glabrous, smooth, black when dry, about 1.7 cm long, apex very obscurely rostrate, the pedicels black when dry, 2 to 2.5 cm long.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 27333 Ramos*, March 10, 1917, in forests near streams.

This species is manifestly allied to *Phaeanthus ebracteolatus* Merr.; it is distinguished especially by its indumentum.

PHAEANTHUS VILLOSUS sp. nov.

Frutex erectus, perspicue et molliter villosus; foliis chartaceis, oblongis, usque ad 22 cm longis, tenuiter caudato-acuminatis, supra glabris, subtus villosis, nervis utrinque circiter 20, perspicuis; pedicellis villosis, 7 ad 9 cm longis; floribus solitariis, circiter 4.5 cm longis, petalis interioribus caudato-acuminatis.

A shrub, the branches, lower surface of the leaves and the pedicels softly and densely villous. Leaves chartaceous, oblong, 16 to 22 cm long, 6 to 8 cm wide, the apex slenderly caudate-acuminate, base acute to somewhat rounded, the upper surface glabrous, shining, the lower surface densely and softly villous on the midrib and nerves; lateral nerves about 20 on each side of the midrib, distinct; petioles densely villous, 7 to 10 mm long. Flowers yellow, extra-axillary, solitary, their densely villous pedicels 8 to 9 cm long. Sepals and the three outer petals minute, pubescent, triangular-ovate, about 1 mm long. Inner petals coriaceous-fleshy, oblong-elliptic, about 4.5 cm long, to 2.3 cm wide, somewhat pubescent outside and with slender longitudinal nerves, base somewhat narrowed, apex subcaudate-acuminate. Anthers numerous, oblong, about 3 mm long, the connectives oblique, somewhat concave. Carpels numerous, oblong, about 3 mm long, somewhat pubescent; style club-shaped, pubescent, about 1.5 mm long.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30775 Ramos & Edaño*, April 23, 1918, along small streams in damp forests.

This species is well characterized by its rather dense soft indumentum, which is found on most parts of the plant. It is most closely allied to *Phaeanthus pubescens* Merr., from which it differs essentially in its much more numerous lateral nerves.

POLYALTHIA Blume

POLYALTHIA DOLICHOPHYLLA sp. nov. § *Eupolyalthia.*

Frutex subglaber; foliis brevissime petiolatis, chartaceis, oblanceolatis ad oblongo-oblanceolatis, usque ad 50 cm longis, 11 ad 18 cm latis, basi perspicue cordatis, subamplexicaulibus,

nervis utrinque circiter 18, valde perspicuis; floribus axillaribus, pedicellatis, circiter 4 cm longis; calycis lobis 1.5 ad 2 cm longis; petalis crasse coriaceis, exterioribus circiter 1.5 cm latis, interioribus angustioribus, infra contractis, basi leviter inflatis; carpellis anguste oblongis, pubescentibus, ovulis 2, superpositis.

A shrub, 2 to 3 m high, glabrous except the petioles and the midribs on the lower surface toward the base. Leaves chartaceous, oblanceolate to oblong-oblanceolate, about 50 cm long, 11 to 18 cm wide, the upper surface grayish when dry, shining, the lower surface brownish, apex somewhat acuminate, narrowed below the middle to the abruptly rounded and prominently cordate base, the base 5 to 8 cm wide, the basal lobes somewhat amplexicaul; lateral nerves about 18 on each side of the midrib, very prominent on the lower surface, curved, arched, anastomosing; petioles very stout, 8 to 10 mm long, pubescent. Flowers yellow or reddish-yellow, axillary, solitary, at maturity about 4 cm long, their pedicels up to 1.5 cm long, each with an ovate, acuminate, basal bracteole about 1 mm long. Calyx-lobes ovate to oblong-ovate, acute or obtuse, chartaceous, 1.5 to 2 cm long. Petals about 3.5 cm long, thickly coriaceous, glabrous, the outer three about 1.5 cm wide, the inner three about 1 cm wide, acute or obtuse and distinctly narrowed below the middle and above the slightly inflated base. Stamens indefinite, the anthers oblong, 2.8 mm long. Carpels numerous, narrowly oblong, pubescent, the stigmas densely pilose; ovules 2, superposed.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 30983* (type), *36873 Ramos & Edaño*, April and May, 1918, along small streams in forests.

This remarkable species is prominently characterized by its unusually large leaves which are narrowed below to the abruptly rounded and prominently cordate, somewhat amplexicaul base; the petioles are unusually short, some of the leaves being subsessile. It has no close alliance among the Malayan species known to me.

PSEUDUVARIA Miquel

PSEUDUVARIA GRANDIFLORA sp. nov.

Arbor circiter 5 m alta, plus minusve cinereo-pubescentibus, novellis dense ferrugineo-pubescentibus; foliis oblongis, usque ad 20 cm longis, obtuse acuminatis, basi acutis ad subrotundatis, nervis utrinque 8 ad 11, curvato-adscendentibus, perspicuis; floribus axillaribus, numerosis, fasciculatis, longe pedicellatis, circiter 1.5 cm longis.

A tree, about 5 m high, the branches dark grayish-brown,

rugose, glabrous, the branchlets rather densely cinereous-pubescent, the young tips ferruginous-pubescent. Leaves chartaceous, oblong, 13 to 20 cm long, 4 to 5.5 cm wide, pale-olivaceous and somewhat shining on the upper surface when dry, the midrib pubescent, the lower surface paler, pubescent on the midrib and lateral nerves, base acute, apex blunt-acuminate; lateral nerves 8 to 11 on each side of the midrib, curved-ascending, prominent, anastomosing; petioles pubescent, 5 to 7 mm long. Flowers numerous, axillary, fascicled, about 1.5 cm long, usually two or three in each fascicle, their pedicels pubescent, 1.5 to 2.5 cm long. Sepals reniform, rounded, pubescent, about 1.8 mm long and 2 mm wide. Outer three petals suborbicular-ovate, pubescent, rounded, 3.5 to 4 mm long; inner three petals arched, the claw about 9 mm long, pubescent externally, glabrous within, the limb rhomboid, about 10 mm wide, pubescent externally and on the margins, glabrous within. Stamens very numerous, about 1 mm long. Female flowers unknown.

LUZON, Ilocos Norte Province, Bangui, *Bur. Sci. 27514 Ramos*, March 9, 1917, in damp forests at low altitudes, Ilocano name *apnit*.

This species is readily distinguished from the only other known Philippine species, *Pseuduvaria philippinensis* Merr., by its very much larger flowers.

UVARIA Linnaeus

UVARIA PANAYENSIS sp. nov.

Frutex scandens, floribus dense griseo-puberulis exceptis glaber vel subglaber; foliis oblongis, chartaceis ad subcoriaceis, usque ad 28 cm longis, tenuiter acuminatis, basi cordatis, nervis utrinque circiter 15, perspicuis; floribus pallidis, circiter 4.5 cm diametro; sepalis reniformibus; petalis coriaceis, utrinque dense cinereo-puberulis, late ovatis, 2.5 cm longis; carpellis linearioblongis, glabris, pauciovulatis.

A scandent shrub, nearly glabrous except the densely grayish-puberulent flowers. Branches glabrous, the branchlets with very few, scattered, ferruginous, scarcely stellate hairs. Leaves oblong, firmly chartaceous or subcoriaceous, 25 to 28 cm long, 8 to 9 cm wide, entirely glabrous, grayish on both surfaces when dry, the apex slenderly and sharply acuminate, base rounded and distinctly cordate; lateral nerves prominent, curved, anastomosing, about 15 on each side of the midrib, the reticulations lax; petioles 5 mm long or less, black when dry. Flowers about 4.5 cm in diameter, apparently pale or yellowish, their pedicels about 3 cm long, glabrous or with very few, short, ferruginous,

obscurely stellate hairs, each with a broadly ovate, ferruginous-pubescent, 3 to 4 mm long bract at or below the middle. Sepals reniform, coriaceous, about 6 mm long, 9 mm wide, externally cinereous-pubescent. Petals coriaceous, densely cinereous-pubescent on both surfaces, the outer three broadly ovate, obtuse, about 2.5 cm long, 2 cm wide, the inner three somewhat smaller. Anthers very numerous, linear-oblong, 3.5 to 4 mm long, the connectives rounded-truncate, not oblique, very slightly produced. Carpels many, linear-oblong, glabrous, including the stigma 3 mm long; ovules few.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31367 Ramos & Edaño*, May 22, 1918, in forests along small streams.

This species is manifestly allied to *Uvaria leytensis* (Elm.) Merr., from which it is readily distinguished by its distinctly cordate leaves and its cinereous-puberulent flowers.

UVARIA MACGREGORII sp. nov.

Frutex scandens, inflorescentiis exceptis glaber; foliis chartaceis, oblongo-ovatis et ovato-ellipticis, usque ad 12 cm longis, griseo-olivaceis, apice obtusis, basi rotundatis et plerumque leviter cordatis, nervis tenuibus, utrinque circiter 10; floribus circiter 2 cm diametro, rubro-brunneis; sepalis margine ferrugineo-pubescentibus; petalis late ovatis, circiter 1 cm longis, margine ferrugineo-pubescentibus ceteroquin glabris; carpellis anguste oblongis, glabris.

A scandent shrub, glabrous except the axillary buds on the young branchlets, and parts of the inflorescences. Leaves firmly chartaceous, oblong-ovate to ovate-elliptic, 8 to 12 cm long, 3.5 to 6 cm wide, glabrous on both surfaces, grayish-olivaceous when dry, slightly shining, somewhat narrowed upward to the obtuse apex, base broadly rounded and usually slightly cordate; lateral nerves slender, not prominent, about 10 on each side of the midrib, anastomosing; petioles 5 mm long, black when dry, glabrous. Flowers dark reddish-brown, about 2 cm in diameter (somewhat immature) in short, usually 2-flowered, leaf-opposed inflorescences, the peduncles 3 mm long or less, the pedicels 5 to 10 mm long, rugose when dry, the subtending bracts oblong, 3 to 4 mm long, the bracts and pedicels with few, scattered, ferruginous hairs, the latter soon becoming glabrous. Sepals broadly ovate to reniform, about 4 mm long, rounded or subacute, coriaceous, rugose when dry, their margins ferruginous-pubescent. Petals broadly ovate about 1 cm long, obtuse to subacute, densely ferruginous-pubescent on the margins and toward the tip, otherwise glabrous. Anthers numerous, narrowly oblong, 1.5 mm long, the connectives oblique, slightly produced. Carpels numerous,

narrowly oblong, glabrous, 1.5 mm long; ovules usually 4; styles 0.5 mm long.

PANAY, Antique Province, Batbatan Island, opposite Culasi, *Bur. Sci. 32249 McGregor,* June 29, 1918, fairly common in thickets at low altitudes.

This species rather closely resembles *Cuming 1607* from Misamis Province, Mindanao, which has been referred to *Uvaria ovalifolia* Blume but which apparently is not referable to Blume's species. Among the other characters the present species differs from *Uvaria ovalifolia* in its somewhat smaller, fewer-nerved leaves; in being nearly glabrous; and in its entirely glabrous carpels. It is well characterized by its sepals and petals being nearly glabrous except for their densely ferruginous-pubescent margins and apices.

LAURACEAE

CRYPTOCARYA R. Brown

CRYPTOCARYA RAMOSII sp. nov.

Arbor parva, ramulis inflorescentiisque exceptis glabra; foliis oblongis ad oblongo-lanceolatis, subcoriaceis, 6 ad 11 cm longis, acuminatis, basi acutis, nervis utrinque 7 vel 8, perspicuis, reticulis ultimis confertis, utrinque obscure foveolatis; fructibus ellipsoideis, 1.5 cm longis, nigris, nitidis, glabris, laevis, 1.5 cm longis.

A tree, 5 to 6 m high, glabrous, except the young branchlets and inflorescences which are ferruginous-pubescent. Branches reddish-brown, lenticellate. Leaves oblong to oblong-lanceolate, subcoriaceous, usually pale when dry, shining, 6 to 11 cm long, 1.5 to 4 cm wide, narrowed upward to the acuminate apex, base acute; lateral nerves usually 7 or 8 on each side of the midrib, rather prominent on the lower surface, pinnately arranged, curved, anastomosing, the ultimate reticulations very close, both surfaces very shallowly and minutely foveolate; petioles 5 to 8 mm long. Panicles in the uppermost axils, narrow, rather few-flowered, 6 to 8 cm long, the branches rather few, short, not exceeding 1.5 cm in length. Flowers subsessile, ferruginous-pubescent, about 4 mm long, the tube about 2 mm long. Perianth-lobes elliptic-ovate, as long as the tube. Fruit ellipsoid, black and shining when dry, 1.5 cm long, glabrous, smooth.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33071 Ramos,* August 30, 1918, in forests at low altitudes.

The description of the flowers is from *Bur. Sci. 33346 Ramos,*

from Mount Palimlim, this specimen differing slightly from the type in its relatively somewhat shorter and slightly fewer-nerved leaves. The alliance of this species is manifestly with *Cryptocarya vidalii* Merr., from which it is easily distinguished by its much smaller fruits.

CRYPTOCARYA EUPHLEBIA sp. nov.

Arbor parva, ramulis et petiolis et inflorescentiis dense castaneo-pubescentibus; foliis oblongis ad oblongo-ellipticis, subcoriaceis, usque ad 10 cm longis, costa excepta glabris, olivaceis, nitidis, apice breviter acuminatis, basi acutis ad subrotundatis, utrinque, praesertim subtus, minute et dense foveolatis; nervis utrinque 6 ad 8, supra impressis, subtus valde priminulis, subadscendentibus, vix anastomosantibus; paniculis axillaribus terminalibusque sub fructu usque ad 10 cm longis; fructibus in siccitate nigris, depresso-globosis, laevis, glabris, 10 ad 12 mm diametro.

A small tree, the branchlets, petioles, and inflorescences densely and finely castaneous-pubescent. Branches terete, glabrous, lenticellate, smooth, brownish. Leaves subcoriaceous, oblong to oblong-elliptic, 6 to 10 cm long, 2.5 to 5 cm wide, olivaceous, shining, glabrous except for the somewhat pubescent midrib, the apex abruptly and distinctly acuminate, base acute to somewhat rounded, both surfaces, but especially the lower one, densely and shallowly foveolate; lateral nerves 6 to 8 on each side of the midrib, impressed on the upper surface, very prominent on the lower surface, somewhat ascending, slightly curved, not or but very obscurely anastomosing; petioles 8 to 10 mm long. Panicles axillary and terminal, in fruit up to 10 cm long. Fruits black, glabrous, smooth, shining, depressed-globose, 10 to 12 mm in diameter.

CATANDUANES, *Bur. Sci. 20576 Ramos,* November 20, 1917, on the forested slopes of Mount Mariguidon.

This species is well characterized by its shallowly and densely foveolate, glabrous, conspicuously nerved leaves and its depressed-globose fruits. In the latter character it differs especially from *Cryptocarya oblongata* Merr. It seems to be most closely allied to *Cryptocarya zamboanguensis* Merr. and *C. intermedia* Elm.

CRYPTOCARYA ELLIPTIFOLIA sp. nov.

Arbor parva, inflorescentiis exceptis glabra; foliis ellipticis ad elliptico-ovatis, chartaceis, subolivaceis, nitidis, usque ad 20 cm longis, apice perspicue et obtuse acuminatis, basi leviter decurrento-acuminatis, nervis utrinque 5, distantibus, distinctis, cur-

vatis, vix elevatis; paniculis sub fructu axillaribus, circiter 7 cm longis; fructibus globosis, circiter 1.5 cm diametro, in siccitate nigris, nitidis, glabris, leviter longitudinaliter striatis.

A small tree, 6 m high *fide* Ramos, entirely glabrous except the inflorescences, which are apparently somewhat pubescent. Branches and branchlets smooth, terete, slender, smooth, brownish-olivaceous. Leaves elliptic-ovate to elliptic, chartaceous, subolivaceous, shining, 15 to 20 cm long, 7 to 9 cm wide, not at all foveolate, the apex prominently and obtusely acuminate, the acumen about 1.5 cm long, stout, the base somewhat decurrent-acuminate; lateral nerves 5 on each side of the midrib, prominent but scarcely projecting, somewhat curved, reticulations slender, distinct, rather close; petioles 1 to 2 cm long. Panicles in fruit axillary, about 7 cm long, the branchlets sparingly pubescent. Fruits globose, black when dry, shining, faintly ridged longitudinally, glabrous, about 1.5 cm in diameter.

CATANDUANES, *Bur. Sci. 30330 Ramos*, December 9, 1917, in forests along small streams back of Calolbong.

A species well characterized by its rather large, conspicuously acuminate leaves; lateral panicles; and rather large, globose, somewhat ridged, glabrous fruits.

CRYPTOCARYA DENSIFLORA Blume Bijdr. (1825) 556; Koord. & Val. Bijdr. Boom. Java 10 (1904) 213.

PANAY, Jamindan and Mount Macosolon, *Bur. Sci. 31317, 33435 Ramos & Edaño*, April and May, 1918 (leaves not glaucous beneath). NEGROS, *For. Bur. 23666 Hinolan*, March, 1915. MINDANAO, Lanao, *Mrs. Clemens 1001, s. n.*, April and July, 1907.

This species has previously been reported from Java, where it is common and widely distributed, and from the Malay Peninsula. The Philippine material cited above closely matches a series of specimens from Java and the Malay Peninsula, and also conforms to the descriptions of Blume's species. The specimens collected by Mrs. Clemens were described by me in 1908 as a new species of *Beilschmiedia*, but the description was fortunately never published. *Cryptocarya laevigata* Elm., the type of which is a specimen with very immature fruits, is scarcely to be distinguished from Blume's species.

NEOLITSEA Merrill

NEOLITSEA LANCEOLATA sp. nov.

Arbor circiter 6 m alta, ramulis junioribus et petiolis dense adpresse pubescentibus, ramis glabris, teretibus, ramulis et foliis verticillatis; foliis lanceolatis, chartaceis ad subcoriaceis, in siccitate brunneis, nitidis, usque ad 7 cm longis et 1.5 cm latis, basi

acutis, apice tenuiter acuminatis, junioribus ad costa villosis, vetustioribus glaberrimis, penninerviis, nervis primariis utrinque circiter 10; fructibus axillaribus, fasciculatis, parvis, glabris, pedicellis adpresse pallide villosis, circiter 5 mm longis.

A tree, about 6 m high, the young branchlets and petioles densely pale or pale-ferruginous appressed-pubescent. Branches glabrous, terete, the branchlets verticillate, 3 to 6 at a node. Leaves verticillate, chartaceous to subcoriaceous, brownish when dry, lanceolate, 5 to 7 cm long, 1 to 1.5 cm wide, narrowed below to the acute base and above to the slenderly acuminate apex, shining, smooth, the older ones entirely glabrous, the younger ones pale appressed-villous along the midrib on both surfaces; nerves all pinnately arranged, the primary ones about 10 on each side of the midrib, slender, curved, somewhat ascending, obscurely anastomosing, the reticulations not prominent, the ultimate ones close and very obscurely foveolate; petioles 5 to 8 mm long, rather densely pubescent. Fruits fascicled on the ultimate branches below the leaves, 3 to 6 in a fascicle, the pedicels rather stout, somewhat thickened upward, pale appressed-pubescent, the persistent calyx-tube somewhat funnel-shaped, truncate, glabrous, about 5 mm in diameter.

CATANDUANES, Mount Mariguidon, *Bur. Sci. 30231 Ramos*, November 27, 1917, in forests near the summit of the mountain.

This species is well characterized by its verticillate branchlets and its small, lanceolate, penninerved leaves. It does not appear to be very closely allied to any of the previously described species of the genus.

NEOLITSEA PAUCINERVIA sp. nov.

Species *N. zeylanicae* affinis. Arbor circiter 7 m alta, ramis et foliis glabris, ramulis dense pubescentibus; foliis alternis, oblongo-lanceolatis, subcoriaceis, in siccitate brunneis, nitidis, usque ad 8 cm longis et 3 cm latis, tenuiter acuminatis, basi acutis, 3-plinerviis, nervis lateralibus utrinque circiter 3, distinctis, curvato-anastomosantibus, adscendentibus, obscure anastomosantibus; fructibus axillaribus, ovoideis vel subglobosis, in siccitate nigris, rugosis, nitidis, circiter 5 mm diametro, calycis lobis 4, lanceolatis, acuminatis, villosis, pedicellis nigris, decidue villosis.

A tree, about 7 m high, the branches smooth, terete, glabrous, the branchlets and petioles densely pubescent with short hairs. Leaves alternate, rather more numerous near the tips of the branchlets and here sometimes pseudo-verticillate, oblong-lanceolate, subcoriaceous, brownish and shining when dry, both sur-

faces densely and shallowly foveolate, not at all glaucous, entirely glabrous, 7 to 8 cm long, 2 to 3 cm wide, narrowed below to the acute base and above to the slenderly acuminate apex, the base 3-plinerved, the lateral basal nerves leaving the midrib about 5 mm above the base of the leaf and extending to or beyond the middle, the lateral ones above the base 2 or 3, slender, distinct, curved-ascending, obscurely anastomosing; petioles 5 to 8 mm long. Fruits axillary and in the axils of fallen leaves, fascicled, 5 to 12 in a fascicle, ovoid to subglobose, about 5 mm in diameter, black and shining when dry, somewhat wrinkled. Pedicels about 5 mm long, black, covered with a brownish, more or less deciduous, appressed, villous indumentum, the persistent calyx-lobes lanceolate, acuminate, villous, about 2 mm long.

LUZON, Sorsogon Province, Mount Kililibong, *Bur. Sci. 23316 Ramos*, August 17, 1915, in the mossy forest.

This species, among the Philippine forms, is probably as closely allied to *Neolitsea villosa* Merr. as any, but differs in its few-nerved, glabrous, not glaucous leaves. Its true alliance seems to be with *N. zeylanica* Merr., from which it is distinguished by its nonglaucous leaves and its villous pedicels. It also closely resembles some forms of the Javan *N. cassiaefolia* Merr.

SAXIFRAGACEAE

POLYOSMA Blume

POLYOSMA VILLOSA sp. nov.

Frutex, subtus foliis et ramis et inflorescentiis dense molliter villosus; foliis verticillatis, 4-natis, oblongis ad oblongo-ellipticis, chartaceis ad subcoriaceis, 7 ad 10 cm longis, apice acutis, margine distanter dentatis; nervis utrinque 12 ad 15, patulis, distinctis; petiolo 1.5 ad 2 cm longo; racemis axillaribus, 5 cm longis, paucifloris; fructibus ellipsoideis, 8 mm longis, plus minusve pubescentibus, bracteolis subaequalibus, circiter 1 mm longis.

A shrub, the branches, branchlets, petioles, inflorescences, and the lower surface of the leaves, especially on the midrib and nerves, densely and softly villous. Leaves verticillate, usually 4 at each node, oblong to oblong-elliptic, chartaceous to subcoriaceous, 7 to 10 cm long, 2.5 to 4 cm wide, dark-olivaceous and shining when dry, the base rounded to acute, apex acute, sometimes with a very short mucro, the margins conspicuously villous, coarsely and distantly toothed, the upper surface more or less pubescent on the midrib and nerves; lateral nerves 12 to 15 on each side of the midrib, spreading at right angles, distinct, anas-

tomosing, the reticulations lax. Petioles 1.5 to 2 cm long. Racemes axillary, solitary, about 5 cm long, few-flowered, pubescent. Fruits ellipsoid, about 8 mm long, somewhat pubescent, their pedicels about 3 mm long, the subtending bracteoles subequal, oblong-ovate, pubescent, about 1 mm long. Persistent calyx lobes ovate, acute, 1 mm long.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33340 Ramos*, August 21, 1918, on forested slopes, altitude about 900 meters.

This species apparently belongs in the group with *Polyosma verticillata* Merr., from which it is specially distinguished by its dense indumentum and its lateral, not terminal, few-flowered racemes.

POLYOSMA LONGIPETIOLATA sp. nov.

Frutex, partibus junioribus inflorescentiisque exceptis glaber; foliis verticillatis, 4- vel 5-natis, oblongo-ellipticis ad anguste oblongo-obovatis, coriaceis, in siccitate nigris, 8 ad 13 cm longis, integris, basi acutis, apice breviter lateque acuminatis, nervis utrinque 8 ad 11, distinctis; petiolo usque ad 6 cm longo; racemis terminalibus, usque ad 20 cm longis; fructibus anguste ellipsoideis, 8 mm longis, bracteolis valde inaequalibus, interioribus quam lateralibus duplo longioribus, 3 ad 5 mm longis.

A shrub, about 5 m high, glabrous except the very young parts and the inflorescences. Branches terete, dark reddish-brown, smooth, glabrous, the branchlets more or less angled, the younger ones appressed-pubescent with very short hairs. Leaves verticillate, 4 or 5 at each node, oblong-elliptic to narrowly oblong-obovate, coriaceous, glabrous, the upper surface nearly black when dry, the lower surface dark-brown, 8 to 13 cm long, 2.5 to 5 cm wide, entire, base acute, apex very shortly and broadly acuminate, the acumen obtuse and with a blunt apiculus; lateral nerves 8 to 11 on each side of the midrib, spreading, distinct, anastomosing. Petioles unusually long, up to 6 cm in length, when young pubescent, soon becoming glabrous. Racemes terminal, in fruit up to 20 cm long, more or less pubescent; pedicels 3 to 5 mm long. Fruits narrowly ellipsoid, about 8 mm long, slightly pubescent, the subtending bracteoles very unequal, pubescent, linear-oblong, the middle one 3 to 4 mm long, at least twice as long as the two lateral ones. Persistent calyx-lobes triangular-ovate, acute, 1 mm long.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33259 Ramos*, August 20, 1918, on forested slopes, altitude about 1,000 meters.

Among those species with verticillate leaves *Polyosma longipetiolata* is strikingly characterized by its glabrous branches; unusually long-petioled, glabrous, entire leaves; and its very unequal bracteoles.

PITTOSPORACEAE

CITRIOBATUS A. Cunningham

CITRIOBATUS JAVANICUS Boerl. & Koord. in Ic. Bogor. 1 (1901) *t. 77.*

LUZON, Batangas Province, Mount San Pedro, *Bur. Sci. 22343 Ramos,* August 20, 1914, in thickets at low altitudes.

With the exception of this one species the small genus *Citriobatus* is confined to Australia. The Philippine specimens were distributed unidentified, as without flowers I could not determine the group to which they belonged. I am now, however, able to name the material by a direct comparison with a series of five specimens from Java, including duplicates of three numbers of Koorders's collection on which the species was based. The Philippine specimens agree with the Javan ones in all respects.

PITTOSPORUM Banks

PITTOSPORUM PSEUDOSTIPITATUM sp. nov.

Frutex glaber, ramulis tenuibus; foliis verticillatis, 3- vel 4-natis, anguste lanceolatis, 4 ad 6 cm longis, utrinque angustatis, apice tenuiter acuminatis, nervis tenuibus; fructibus terminalibus, fasciculatis, tenuiter pedunculatis, obovoideis, 2-valvis, basi tenuiter stipitatis, stipite circiter 4 mm longo, partibus seminiferis 6 ad 7 mm longis, 6 mm diametro.

A glabrous shrub, about 3 m high, the branches and branchlets slender, terete. Leaves verticillate, usually 3 or 4 at a node, coriaceous, narrowly lanceolate, 4 to 6 cm long, 6 to 13 mm wide, narrowed below to the acute or acuminate base and above to the very slenderly acuminate apex, the tip with a distinct cartilaginous mucro, the upper surface olivaceous to black when dry, shining; lateral nerves slender, scarcely more distinct than are the reticulations; petioles about 5 mm long. Fruits fascicled at the tips of the branchlets, 2 to 4 in a fascicle, their pedicels slender, about 1 cm long, the capsule obovoid, black when dry, 2-valved, the lower part narrowed into a distinct pseudostalk, the thickened portion of the capsule 6 to 7 mm long, about 6 mm in diameter, the entire capsule, including the pseudostalk, about 1 cm long.

LUZON, Ilocos Norte Province, Mount Nagapatan, *Bur. Sci. 33127 Ramos,* August 8, 1918, on dry slopes, altitude about 700 meters.

This species is readily distinguished by its narrowly lanceolate, very sharply acuminate and cartilaginous-mucronate leaves as well as by its terminal, fascicled fruits, these being obovoid and much narrowed below the middle to form a very distinct pseudostalk.

PITTOSPORUM ACUMINATISSIMUM sp. nov.

Frutex epiphyticus vel pseudo-epiphyticus, glaber, ramulis tenuibus; foliis chartaceis, oblongis ad oblongo-ellipticis, nitidis, tenuiter acute acuminatis, usque ad 8 cm longis, nervis utrinque 7 ad 9, tenuibus; inflorescentiis solitariis, lateralibus et terminalibus, brevibus, 3-floris; floribus circiter 12 mm longis, ovario dense villoso; fructibus leviter compressis, 2-valvis, ellipsoideis, circiter 23 cm longis, valvis crasse carnoso-coriaceis, in siccitate rugosis.

An epiphytic or pseudoepiphytic shrub, entirely glabrous except the densely pubescent ovaries, the ultimate branches slender, 2 to 3 mm in diameter. Leaves chartaceous, oblong to oblong-elliptic, brownish-olivaceous when dry, 5 to 8 cm long, 2 to 4 cm wide, the apex sharply and slenderly acuminate, base acute; lateral nerves 7 to 9 on each side of the midrib, slender as are the reticulations; petioles 2 to 3 cm long, slender. Inflorescences usually solitary, lateral, rarely terminal, usually 3-flowered, their peduncles 5 mm long or less, the pedicels 5 to 10 mm long. Calyx shallowly cup-shaped, about 4 mm in diameter, the lobes broadly ovate, obtuse, 1.5 to 1.8 mm long. Petals 5, narrowly oblong, 11 mm long, 3.5 mm wide, obtuse. Filaments 4 to 4.5 mm long. Ovary oblong-ovoid, densely villous; style glabrous, 1.5 mm long. Capsules ellipsoid, somewhat compressed, 2-valved, about 2.3 cm long, 1.8 cm wide, the valves thick, fleshy-coriaceous, rugose when dry.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30745 Ramos & Edaño,* April 21, 1918, on trees in forests.

This form has the same habit as *Pittosporum resiniferum* Hemsl. and is manifestly closely allied to that species. It differs in its smaller leaves and its usually solitary, lax, few-flowered inflorescences; in Hemsley's species the flowers are borne in dense fascicles, while in the present species they are in depauperate, 3-flowered, usually solitary cymes.

PITTOSPORUM GLABERRIMUM sp. nov.

Frutex glaberrimus, ramulis tenuibus; foliis verticillatis, 3- vel 4-natis, oblongo-lanceolatis, utrinque angustatis, acutis vel leviter acuminatis, nervis utrinque 6 vel 7, tenuibus, distinctis;

capsulis terminalibus, solitariis, ellipsoideis vel obovoideis, 2-valvis, 2.5 cm longis, pedicellis 1 cm longis.

An entirely glabrous shrub, about 3 m high, the ultimate branchlets slender, terete, about 1.5 mm in diameter. Leaves verticillate, usually 3 or 4 at a node, oblong-lanceolate, shining subcoriaceous, those of each whorl more or less unequal, 3 to 6 cm long, 1 to 2 cm wide, subequally narrowed below to the acute base and above to the acute or slightly acuminate apex; lateral nerves slender, distinct, 6 or 7 on each side of the midrib, anastomosing, the reticulations lax; petioles 3 to 5 mm long. Capsules terminal, solitary, ellipsoid to somewhat obovoid, 2-valved, about 2.5 cm long, 1.5 to 2 cm in diameter, black when dry, orange-yellow when fresh, their pedicels about 1 cm long.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33309 Ramos,* August 21, 1918, on forested slopes, altitude about 1,000 meters.

The alliance of this species is apparently with *Pittosporum odoratum* Merr., from which it is at once distinguishable by its solitary terminal fruits.

ROSACEAE

PHOTINIA Lindley

PHOTINIA SERRULATA Lindl. in Trans. Linn. Soc. 13 (1821) 103 (excl. syn. *Crataegus glabra* Thunb.); Hemsl. in Journ. Linn. Soc. Bot. 33 (1887) 263; Rehder & Wilson in Sargent Pl. Wils. 1 (1912) 184.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 4425 Mearns, Bur. Sci. 31560 Santos, Sandkuhl 258,* altitude about 2,300 meters, in flower May to July, in fruit in February, Igorot name *itangan.*

This species has not previously been reported from the Philippines. The specimens cited above conform very closely with our series from Formosa, and from Kwangtung, Fokien, and Yunnan Provinces, China.

CONNARACEAE

CONNARUS Linnaeus

CONNARUS CASTANEUS sp. nov.

Frutex scandens, perspicue castaneo-pubescentibus; foliis circiter 30 cm longis, foliolis plerumque 7, coriaceis, oblongo-ellipticis, leviter acuminatis, 11 ad 18 cm longis, subtus densissime ferrugineo-pubescentibus; infructescentiis paniculatis, terminalibus, usque ad 25 cm longis, folliculis obovatis, compressis, leviter inaequilateralibus, 6 cm longis, extus densissime castaneo-pubescentibus, intus leviter villosis.

A scandent shrub, the branchlets, petioles, infructescences,

and fruits densely castaneous-pubescent, the leaflets beneath densely ferruginous-pubescent. Leaves about 30 cm long, the leaflets usually 7, alternate, coriaceous, oblong-elliptic, somewhat acuminate, base rounded, 11 to 18 cm long, 5 to 7 cm wide, the upper surface greenish, more or less pubescent with deciduous pale hairs; lateral nerves usually 7 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations rather lax; petiolules 5 to 8 mm long, densely castaneous-pubescent. Panicles terminal, in fruit up to 25 cm long, the primary branches up to 15 cm long. Fruits compressed, obovate, slightly inaequilateral, about 6 cm long and 4 cm wide, externally very densely castaneous-pubescent, inside sparingly villous with pale hairs.

LUZON, Camarines Province, Paracale, *Bur Sci. 33600 Ramos & Edaño*, November 30, 1918, in damp forests at low altitudes, the fruits red, the lower surface of the fresh leaves red.

A species strongly characterized by the dense castaneous indumentum on the branchlets, petioles, infructescences, and fruits; and by the leaflets being densely ferruginous-pubescent on the lower surface and reddish-brown in contrast with the green upper surface. The indumentum is composed entirely of simple hairs.

ROUREA Aublet

ROUREA LUZONIENSIS sp. nov.

Frutex scandens, glaber; foliis circiter 10-foliolatis, 8 ad 12 cm longis, foliolis 2 ad 4 cm longis, subcoriaceis, ovatis ad oblongo-ellipticis, obtusis vel obscure breviterque acuminatis, basi plerumque rotundatis; infructescentiis axillaribus, solitariis, racemosis, 8 ad 10 cm longis, fructibus paucis, tenuiter pedicellatis, subaequilateralibus, oblongo-ovoideis, 8 ad 10 mm longis.

A scandent glabrous shrub, about 3 m high. Leaves 8 to 12 cm long, about 10-foliolate; leaflets subopposite and alternate, subcoriaceous, ovate to oblong-elliptic, 2 to 4 cm long, 1.2 to 2.3 cm wide, base rounded, usually somewhat inequilateral, apex obtuse to shortly acuminate, both surfaces rather pale when dry, shining. Inflorescences axillary, solitary, racemose, 8 to 10 cm long, few-flowered. Fruits oblong-ovoid, nearly equilateral, acute or slightly apiculate, 8 to 10 mm long, their pedicels 6 to 10 mm long. Persistent sepals broadly ovate, glabrous, the outer ones acute or slightly acuminate, the inner ones broadly rounded, about 3.5 mm long.

LUZON, Camarines Province, Paracale, *Bur. Sci. 33534 Ramos & Edaño*, November 29, 1918, in dry thickets at low altitudes.

This species is allied to *Rourea erecta* (Blanco) Merr., from which it is especially distinguished by its fewer, differently shaped, not slenderly acuminate leaflets; and its smaller, nearly equilateral, slenderly pedicelled fruits which are racemosely arranged.

LEGUMINOSAE

TRIFIDACANTHUS Merrill

TRIFIDACANTHUS UNIFOLIOLATUS Merr. in Philip. Journ. Sci. 12 (1917) Bot. 269.

Pods straight, about 2 cm long, usually composed of three or four 1-seeded joints, flat, thin, reticulate, sparingly pubescent, the upper suture nearly straight, slightly indented between the joints, the lower suture rather deeply indented; joints usually 6 to 7 mm long, about 4 mm wide, the valves chartaceous or thinly coriaceous.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32925 Ramos,* July 18, 1918, in dry thickets at low altitudes.

The original description of this new genus and species was based on flowering specimens, but the second collection, and this from the type locality, shows that I was correct in placing it in the *Papilionatae-Hedysareae-Desmodiinae,* the *Desmodiinae* being indicated in the original description with doubt. It is manifestly most closely allied to *Desmodium,* from which, among other characters, it is distinguished by its characteristic spines.

INDIGOFERA Linnaeus

INDIGOFERA HENDECAPHYLLA Jacq. Coll. 2 (1788) 359, Ic. Rar. 3 (1768–93) *t. 570;* Baker in Hook. f. Fl. Brit. Ind. 2 (1876) 98 (*endecaphylla*); Craib in Notes Bot. Gard. Edinb. 8 (1913) 68.

Indigofera pusilla Lam. Encycl. 3 (1789) 248.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32770 Ramos,* August 5, 1918, in open dry places at low altitudes.

India to southeastern China, tropical and South Africa, and Madagascar; not previously reported from the Philippines.

ORMOSIA Jackson

ORMOSIA ORBICULATA sp. nov. § *Toulichiba, Macrodisca.*

Arbor, ramulis inflorescentiisque ferrugineo-pubescentibus exceptis glabra; foliis usque ad 30 cm longis, rhachibus productis; foliolis 7, subcoriaceis, glabris, oblongis ad oblongo-ellipticis, 8 ad 15 cm longis, apice acuminatis, nervis utrinque circiter 8; paniculis circiter 16 cm longis; floribus numerosis, circiter 2 cm

longis, calycis circiter 8 cm longis; ovulis 2; leguminis suborbicularibus ad ovatis, usque ad 7 cm longis, basi late rotundatis, apice apiculatis, valvis crassis, lignosis; seminibus solitariis, ellipsoideis, exarillatis, 2 cm longis.

A tree, attaining a height of at least 10 m, glabrous except the young branchlets, buds, and inflorescences, which are rather densely ferruginous-pubescent. Leaves up to 30 cm long, the rachis extended beyond the distal pair of leaflets; leaflets 7, subcoriaceous, oblong to oblong-elliptic, pale when dry, somewhat shining, 8 to 15 cm long, 3.5 to 7 cm wide, base acute to rounded, apex distinctly acuminate, the acumen usually blunt; lateral nerves about 8 on each side of the midrib, distinct on both surfaces as are the reticulations; petiolules about 5 mm long. Panicles about 16 cm long, densely ferruginous-pubescent, terminal, the primary branches few, the lower ones up to 6 cm long. Flowers white, about 2 cm long. Calyx externally densely ferruginous-pubescent, about 1.5 cm long, the tube broad, up to 8 mm long and 1 cm wide, the lobes oblong, usually obtuse, about 8 mm long, slightly pubescent inside. Standard broadly obovate, about 2 cm long, the claw stout, 4 to 5 mm long. Filaments glabrous. Ovary stipitate, oblong, very slightly pubescent with scattered hairs, soon becoming glabrous, the stipe stout, about 5 mm long; style glabrous, curved, about 1.3 cm long; ovules 2. Pod thick, woody, suborbicular to ovate, up to 7 cm long and 6 cm wide, base broadly rounded, apex prominently apiculate, the valves up to 1 cm in thickness. Seed solitary, ellipsoid, not arillate, red, shining, about 2 cm long.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32775 Ramos* (type), July 17, 1918; Pasuquin, *For. Bur. 22094, 25094 Paraiso*, July 24, 1914, and February 18, 1916, on forested slopes, ascending to an altitude of 300 meters. Ilocano name *panapotien*.

This species closely resembles *Ormosia macrodisca* Baker, of the Malay Peninsula, but the flowers are much larger and the single specimen that I have with seeds shows no basal aril. From *Ormosia paniculata* Merr. it is at once distinguished by its entirely glabrous leaves.

ORMOSIA CLEMENTIS sp. nov. § *Toulichiba, Macrodisca.*

Arbor circiter 10 m alta, glabra (inflorescentiis ignotis); foliis circiter 40 cm longis, foliolis 5, rhachibus productis, foliolis chartaceis ellipticis ad oblongo-ellipticis, usque ad 20 cm longis, abrupte acute acuminatis, basi acutis, nervis utrinque 8 ad 10, distinctis; leguminis ligneis, subellipticis, circiter 7 cm longis, apice rotundatis vel obscurissime et late apiculatis vel

acutis; seminibus plerumque 2, exarillatis, coccineis, basi nigris, subellipticis, circiter 2 cm longis, 1.5 ad 2 cm latis, nitidis.

A tree about 10 m high, glabrous (inflorescences unknown). Leaves about 40 cm long, the rachis produced above the upper pair; leaflets chartaceous, rather pale when dry, elliptic to oblong-elliptic, 9 to 20 cm long, 3.5 to 8.5 cm wide, the apex rather abruptly and sharply acuminate, base acute; lateral nerves 8 to 10 on each side of the midrib, distinct, anastomosing. Pods woody, subelliptic, about 7 cm long, brown when dry, the valves recurved after dehiscence, base and apex rounded or the apex obscurely and broadly apiculate or merely subacute. Seeds usually 2, not arillate, crimson, with a black base, subellipsoid, about 2 cm long, 1.5 to 2 cm wide, hard, shining, slightly rugose when dry.

MINDANAO, Lanao District, Camp Keithley, *Mrs. Clemens 1139*, July, 1907, altitude about 900 meters.

This species is probably most closely allied to *Ormosia orbiculata* Merr., but the pods are usually 2-seeded and the seeds have a conspicuous black base.

ORMOSIA BASILANENSIS sp. nov. § *Toulichiba, Macrodisca.*

Arbor magna, partibus junioribus et inflorescentiis plus minusve ferrugineo-pubescentibus, ramis circiter 1 cm diametro; foliis circiter 40 cm longis, rhachibus et petiolis et subtus foliolis ad costa ferrugineo-pubescentibus, rhachibus productis; foliolis 9, oblongis ad oblongo-ellipticis, subcoriaceis, 12 ad 17 cm longis, basi acutis, apice acuminatis, nervis utrinque circiter 8; leguminis orbiculari-ovatis, leviter inaequilateralibus, circiter 7 cm longis, valvis crassis, lignosis, apice breviter crasseque acuminatis; seminibus solitariis, 3 cm longis, ellipsoideis, rubris, nitidis, exarillatis.

A large tree, the younger parts, inflorescences, and leaves more or less ferruginous-pubescent, the leaflets only sparingly pubescent beneath along the midrib, the branches rather stout, about 1 cm in diameter, dark colored when dry, glabrous. Leaves about 40 cm long, the rachis and petioles more or less ferruginous-pubescent with rather long hairs, the rachis prolonged beyond the distal pair of leaflets; leaflets 9, oblong to oblongo-elliptic, subcoriaceous, shining, 12 to 17 cm long, 4.5 to 7 cm wide, subequally narrowed to the acute base and the distinctly acuminate apex; lateral nerves about 8 on each side of the midrib, distinct, ascending; petiolules 5 to 7 mm long. Pods orbicular-ovate, slightly inequilateral, about 7 cm long and wide, base rounded, apex with a short stout acumen, the valves woody,

much thickened, much swollen opposite the solitary seed. Seed about 3 cm long, ellipsoid, red, shining, not arillate.

BASILAN, Maluno, *For. Bur. 17893 Rafael,* November 13, 1912, *Hollier 508,* January, 1904, in forests, altitude about 140 meters.

This species like the others here described resembles *Ormosia macrodisca* Baker, but the seeds are not arillate. Among the Philippine species it is perhaps most closely allied to *Ormosia orbiculata,* but the leaflets are more numerous, subequally narrowed at both ends, acute at the base, and sparingly pubescent beneath along the midrib.

ORMOSIA GRANDIFOLIA sp. nov. § *Toulichiba, Macrodisca.*

Arbor circiter 10 m alta, inflorescentiis foliisque plus minusve pubescentibus; foliis circiter 50 cm longis, rhachibus productis; foliolis 7, terminalibus late obovatis, lateralibus ellipticis, 13 ad 17 cm longis, subcoriaceis, apice abrupte obtuseque acuminatis, basi rotundatis, vel terminalibus acutis, nervis utrinque circiter 8; leguminis ellipticis, 6 ad 7 cm longis, apice late rotundatis, valvis crassis, lignosis; seminibus solitariis ellipsoideis, coccineis, 3 cm longis, exarillatis.

A tree, about 10 m high, the inflorescences, petioles, and leaflets on the lower surface more or less pubescent, the indumentum on the leaflets obscure. Leaves about 50 cm long, the rachis extended beyond the distal pair of leaflets; leaflets 7, the terminal one broadly obovate, the lateral ones elliptic, 13 to 17 cm long, 8 to 10 cm wide, subcoriaceous, rather pale when dry, shining, the base usually rounded or that of the terminal leaflet acute, apex very abruptly and shortly acuminate; the lateral nerves about 8 on each side of the midrib, prominent; petiolules about 1 cm long. Pods elliptic, 6 to 7 cm long, about 5.5 cm wide, apex broadly rounded, scarcely apiculate, the valves thick, woody, recurved, apparently one-seeded. Seed solitary, ellipsoid, scarlet, shining, somewhat rugose when dry, 3 cm long, 2.2 cm wide, slightly compressed, not arillate.

LUZON, Camarines Province, Magdoronganon River, *For. Bur. 21172 Alvarez,* March 23, 1914, in forests near the river, altitude about 100 meters.

This species manifestly belongs in the same group as *Ormosia orbiculata,* but has much larger, differently shaped leaflets, which are somewhat pubescent beneath; differently shaped pods, which are broadly rounded and scarcely apiculate at their apices; and much larger seeds. The seed is not at all arillate. *Ormosia basilanensis* Merr. differs in its more numerous leaflets and its elliptic pods, which are broadly rounded at their apices.

DESMODIUM Desvaux

DESMODIUM ORMOCARPOIDES DC. Prodr. 2 (1825) 327; Gagnep. in Not. Syst. 3 (1916) 256; Merr. Interpret. Herb. Amb. (1917) 267, non auct. plur.

Desmodium ormocarpoidès Desv. in Mém. Soc. Linn. Paris 1825 (1826) 307, non auct. plur.

Hedysarum adhaerens Poir. in Lam. Encycl. Suppl. 5 (1817) 15, non Vahl.

Desmodium dependens Blume ex Miq. Fl. Ind. Bat. 1[1] (1855) 248.

JOLO, Tagasip, *F. L. Rola 118,* May 27, 1917, in teak forests at low altitudes.

This Malayan species is new to the Philippines, the specimens agreeing perfectly with material from Celebes and Amboina. As Gagnepain notes all modern botanists have misinterpreted *Desmodium ormocarpoides* DC., an examination of the type showing that it is the form described by Blume as *Desmodium dependens. Desmodium ormocarpoides* of modern authors, including the Philippine specimens previously so named, is *Desmodium zonatum* Miq.

GERANIACEAE

ERODIUM L'Héritier

ERODIUM CICUTARIUM (Linn.) L'Hérit. ex Ait. Hort. Kew. 2 (1789) 414.

Geranium cicutarium Linn. Sp. Pl. (1753) 680.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31669 Santos,* May 9, 1918, in waste places, altitude about 2,300 meters. A weed of wide distribution in temperate regions, unquestionably an introduced plant here.

RUTACEAE

EVODIA Forster

EVODIA MELIAEFOLIA (Hance) Benth. Fl. Hongk. (1861) 58.

Megabotrya meliaefolia Hance in Walp. Ann. 2 (1851–52) 259.

Boymia glabrifolia Champ. in Hook. Kew. Journ. Bot. 3 (1851) 330.

Eurycoma dubia Elm. Leafl. Philip. Bot. 2 (1908) 481.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31968 Santos,* June, 1918, altitude 1,800 meters, with the local name *galiuy-guiuan.* NEGROS, Cuernos Mountains, *Elmer 10120* (type of *Eurycoma dubia* Elm.).

The second collection of this species in the Philipines induced me to make a critical study of it, as it was perfectly evident that the form described by Mr. Elmer as *Eurycoma dubia* represented no simarubaceous plant. I cannot distinguish the Philippine form from *Evodia meliaefolia* Benth., which was previously known from southern Japan, the Liu Kiu Islands,

Formosa, and southern China. It is the only pinnate-leaved *Evodia* known from the Philippines.

EVODIA SESSILIFOLIOLA sp. nov.

Arbor usque ad 10 m alta, partibus junioribus inflorescentiisque plus minusve villosis; foliis plerumque 3-foliolatis, interdum 1-foliolatis, foliolis chartaceis ad subcoriaceis, sessilibus, oblongo-obovatis, usque ad 20 cm longis, basi cuneatis, apice obtusis, subtus punctatis, nervis utrinque circiter 13, subtus perspicuis; inflorescentiis axillaribus, pedunculatis, usque ad 10 cm longis; floribus 4-meris, petalis circiter 2.5 mm longis.

A tree, 8 to 10 m high, the younger parts and the inflorescences more or less villous, the indumentum grayish, the older parts soon glabrous. Leaves mostly 3-foliolate, sometimes 1-foliolate ones on the same branchlets with the 3-foliolate ones, their petioles 5 to 7 cm long; leaflets sessile, chartaceous to subcoriaceous, brownish or rather pale when dry, somewhat shining, obovate to oblong-obovate, 9 to 20 cm long, 4 to 10 cm wide, the mature ones glabrous, beneath distinctly punctate, apex obtuse to rounded, base of the terminal leaflet usually cuneate, equilateral, of the lateral ones usually obtuse and distinctly inequilateral; nerves about 13 on each side of the midrib, prominent on the lower surface, anastomosing, the reticulations prominent. Inflorescences axillary, peduncled, up to 10 cm long, paniculate, rather many flowered. Flowers white, 4-merous, their pedicels up to 2 mm in length, densely villous. Sepals oblong, 0.5 mm long. Petals ovate, about 2.5 mm long. Disk densely villous. Fruit of 3 or 4 cocci, glabrous, the individual cocci about 3 mm in diameter.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31788 Santos* (type), April 22, 1913, altitude about 2,400 meters, with the Igorot name *itapan, Mrs. Clemens s. n.*, January, 1915; Baguio, *Williams 1531*, November 30, 1904, *Sandkuhl 86*, July, 1913.

Among the Philippine species the alliance of this form is with *Evodia semecarpifolia* Merr., and among the extra-Philippine forms with *E. lunur-ankenda* (Gaertn.) Merr. It is distinguished from both by its sessile leaflets. The combination of 3-foliolate and 1-foliolate leaves on the same branchlets is rather unusual in the genus.

MELIACEAE

AGLAIA Loureiro

AGLAIA DIFFUSIFLORA sp. nov. § *Euaglaia.*

Arbor parva, plus minusve brunneo- vel castaneo-lepidotis; foliis alternis, circiter 60 cm longis, 7-foliolatis, foliolis oblongo-

ellipticis, circiter 25 cm longis, chartaceis, obtusis vel obtuse acuminatis, nervis utrinque circiter 16; paniculis diffusis, laxis, foliis subaequantibus, multifloris, ramis inferioribus usque ad 30 cm longis; floribus racemose dispositis, 5-meris, calycis lobis orbicularibus, petalis obovato-ellipticis, 1.4 mm longis, tubo staminео libero.

A small tree, the branchlets and inflorescences densely covered with closely appressed brown or castaneous scales with similar scattered ones on the lower surface of the leaflets. Leaves alternate, about 60 cm long, 7-foliolate; leaflets alternate or the upper pair opposite, chartaceous, rather pale when dry, oblong-elliptic, somewhat inequilateral, about 25 cm long, 9 to 11 cm wide, the apex obtuse or somewhat obtusely acuminate, base usually rounded on one side and acute on the other; lateral nerves about 16 on each side of the midrib, prominent; petiolules 1.5 to 2.5 cm long. Panicles diffuse, about 50 cm long, the branches spreading, the lower ones up to 30 cm in length, many flowered, the flowers laxly and racemosely arranged on the ultimate branchlets, their pedicels 1 to 2 mm long. Flowers white, 5-merous. Calyx-lobes orbicular, rounded, 0.5 mm in diameter. Petals elliptic-obovate to broadly elliptic, 1.4 mm long. Staminal-tube turbinate, glabrous, about 1 mm long, crenulate, the crenulations minutely puberulent, free, glabrous. Anthers 5, inserted below the rim of the tube, about 0.5 mm long, their tips minutely exserted.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31098 Ramos & Edaño*, May 16, 1918, in damp forests.

This species is allied to *Aglaia pallida* Merr., from which it is distinguished by its larger leaflets, the lepidote indumentum not being at all stellate, and by its very much longer petiolules.

ANACARDIACEAE

SEMECARPUS Linnaeus f.

SEMECARPUS SUBSESSILIFOLIA sp. nov.

Species *S. gigantifoliae* affinis, differt inflorescentiis terminalibus, inflorescentiis hypocarpiisque cinereo-pubescens. Frutex vel arbor parva, simplex; foliis oblongo-oblanceolatis, usque ad 50 cm longis et 16 latis, acuminatis, deorsum longe angustatis, basi rotundatis vel obtusis, nervis utrinque 30 ad 35, perspicuis; paniculis circiter 20 cm longis; fructibus oblongis, circiter 1 cm longis.

A shrub or a small unbranched tree, glabrous except the inflorescences. Leaves oblong-oblanceolate, about 50 cm long, 12 to 16 cm wide, firmly chartaceous, shining, the upper surface

olivaceous, the lower pale when dry, apex shortly acuminate, gradually narrowed in the lower two-thirds to three-fourths to the narrow and abruptly rounded or obtuse base, which is at most 2.5 cm wide; midrib very stout, the primary lateral nerves 30 to 35 on each side of the midrib, somewhat curved, anastomosing, prominent, the reticulations rather lax, distinct, the secondary nervules leaving the nerves at about right angles; petioles very stout, about 1 cm long or less, panicles terminal, about 20 cm long, more or less pubescent, the primary branches few, up to 8 cm long. Immature fruits oblong, about 1 cm long, glabrous; hypocarp somewhat turbinate, about 4 mm long, black when dry, cinereous-pubescent.

PANAY, Capiz Province, Mount Madiaas, *Bur. Sci. 30711 Ramos & Edaño,* May 12, 1918, in forests.

This species is manifestly allied to *Semecarpus gigantifolia* F.-Vill. and like that species is unbranched. It differs essentially in its terminal, not cauline, inflorescences which are more or less pubescent and in its distinctly pubescent hypocarps.

SEMECARPUS FERRUGINEA sp. nov.

Arbor parva, ramulis inflorescentiisque ferrugineo-pubescens; foliis oblanceolatis ad oblongo-oblanceolatis, coriaceis, nitidis, acuminatis, basi angustatis, subtus glaucis, nervis utrinque 12 ad 14, perspicuis; paniculis terminalibus, usque ad 28 cm longis; fructibus oblique ovoideis, glabris, 1.2 cm longis, hypocarpio ferrugineo-pubescens.

A small tree, the branchlets, inflorescences, and hypocarps more or less ferruginous-pubescent. Leaves oblanceolate to oblong-oblanceolate, coriaceous, 12 to 16 cm long, 3 to 4.5 cm wide, apex slightly acuminate, somewhat narrowed below to the cuneate or obtuse base, the upper surface brownish-olivaceous, shining, glabrous except the pubescent midrib, the lower surface glaucous, slightly pubescent along the midrib and nerves; lateral nerves 12 to 14 on each side of the midrib, curved, anastomosing, the reticulations rather lax, distinct, the primary nervules leaving the nerves at nearly right angles; petioles stout, 7 to 10 mm long, sulcate on the upper side, pubescent. Panicles terminal, in fruit up to 28 cm long, the rachis and branches densely ferruginous-pubescent, the primary branches few, scattered, the longer ones about 6 cm in length. Fruits obliquely ovoid, glabrous, black and somewhat shining when dry, about 1.2 cm long, the very young ones with a few ferruginous hairs; hypocarps 5 to 7 mm long, ferruginous-pubescent, the indumentum somewhat deciduous; pedicels 5 to 8 mm long.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30756 Ramos & Edaño,* April 22, 1918, on forested slopes.

This species resembles *Semecarpus philippinensis* Engl., to which it is manifestly allied, but from which it is easily distinguished by its ferruginous-pubescent panicles and hypocarps.

ONCOCARPUS A. Gray

ONCOCARPUS OBOVATA (Elm.) comb. nov.

Dichapetalum obovatum Elm. Leafl. Philip. Bot. 2 (1908) 483.

LUZON, Tayabas Province, Mount Banahao, *Elmer 7931* (type), May, 1907, in fruit; *Quisumbing 1346,* May, 1918, with staminate flowers.

While it has long been realized by me that the form described by Mr. Elmer could be no dichapetalous plant, no study of it was previously made on account of the incomplete material representing it. Staminate material from near the type locality shows that it is an anacardiaceous plant and is referable to *Oncocarpus.* It differs radically from the other Philippine species of this small genus in its very short inflorescences, the staminate ones being reduced to few-flowered, axillary fascicles; the staminate flowers are moreover 5- to 6-merous, with 5 calyx-lobes and 6 petals and stamens. The petals are oblong-lanceolate, reticulate, villous externally, about 3 mm long, 1 to 1.2 mm wide, obtuse or acute; the filaments are unequal in length and glabrous; the rudimentary ovary densely villous. In the type collection, which was distributed as *Pterospermum,* the single fruit I have seen is 1-celled and 1-seeded, although it is described as 2-celled with one seed in each cell. The pedicel is only slightly thickened in fruit. The alliance of this species is manifestly with *Oncocarpus densiflora* Merr.

PARISHIA Hooker f.

PARISHIA OBLONGIFOLIA sp. nov.

Arbor, inflorescentiis ferrugineo-tomentosis exceptis glabra; foliis usque ad 40 cm longis, foliolis 15 ad 17, coriaceis, aequilateralibus, oblongis ad oblongo-lanceolatis, acuminatis, usque ad 18 cm longis, nitidis, nervis utrinque circiter 20; infructescentiis quam foliis paullo longioribus, calycis accrescentibus usque ad 10 cm longis, ferrugineo-tomentosis, lobis anguste oblongis, obtusis, usque ad 9 cm longis et 1.5 cm latis, tubo inflato, in siccitate brunneis, fructibus densissime villosis.

A tree, with ultimate branches thickened, rugose, dark-brown, about 1.5 cm in diameter. Leaves up to 40 cm long; leaflets 15 to 17, coriaceous, oblong to oblong-lanceolate, 11 to 18 cm long,

8 to 6 cm wide, acuminate, base acute, shining, brown when dry, the lower surface paler than the other; lateral nerves about 20 on each side of the midrib, distinct; petiolules 7 to 10 mm long. Panicles equal to or longer than the leaves, ferruginous-tomentose. Accrescent calyx up to 10 cm in length, the lobes 4, narrowly oblong, up to 9 cm long, about 1.5 cm wide, obtuse, ferruginous-tomentose, at first membranaceous becoming coriaceous, the inflated base brown when fresh, the lobes more or less pink toward their tips, when dry uniformly brown. Young fruits ovoid, very densely ferruginous-villous with spreading hairs about 2 mm long.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31044 Ramos & Edaño,* May, 1918 (type); Antique Province, Culasi, *Bur. Sci. 32219 McGregor,* May 24, 1918, on forested hillsides, altitude 900 meters. The same species is represented by a sterile specimen from Sibuyan Island, *For. Bur. 27040 Sajor,* November 7, 1917, with the Visayan name *bulalog.*

This species is the second one of the genus to be found in the Philippines and is readily distinguished from *Parishia malabog* Merr. by its narrower, differentially shaped, equilateral, more numerously nerved leaflets and by its ferruginous-tomentose inflorescences and accrescent, much larger calyces, the lobes of which are much wider than are those of *Parishia malabog.*

ICACINACEAE

VILLARESIA Ruiz and Pavon

VILLARESIA PHILIPPINENSIS sp. nov.

Arbor parva, inflorescentiis exceptis glabra; foliis crasse coriaceis, rigidis, ellipticis ad elliptico-oblongis, olivaceis, nitidis, usque ad 11 cm longis, integris, acuminatis, basi plerumque leviter inaequilateralibus, acutis, nervis utrinque circiter 4, perspicuis, petiolo 2 ad 3 cm longo; inflorescentiis terminalibus, 5 ad 8 cm longis, solitariis vel binis, ramis brevissimis; floribus circiter 6 mm longis, confertis; fructibus ovoideis, 2.5 ad 3 cm longis, inaequilateralibus.

A small tree, 4 to 5 m high, entirely glabrous except the inflorescences. Leaves thickly coriaceous, rigid, elliptic to elliptic-oblong, olivaceous and shining on both surfaces when dry, 6 to 11 cm long, 3 to 6.5 cm wide, entire, the apex rather prominently acuminate, base usually slightly inequilateral, acute; lateral nerves usually 4 on each side of the midrib, curved-ascending, arched-anastomosing, prominent on the lower surface, the reticulations lax, distinct; petioles black when dry, 2 to 3 cm long. Inflorescences terminal, 5 to 8 cm long, solitary or sometimes

in pairs, narrow, more or less hirsute with short, somewhat ferruginous hairs, the branches numerous, rather crowded, racemosely arranged, 1 cm long or less, each bearing at the apex 5 to 8, densely crowded, cymosely arranged, sessile flowers. Sepals 5, subelliptic, rounded, imbricate, 1.5 to 2 mm long, sparingly hirsute. Petals 5, narrowly oblong, white, glabrous, 5 to 6 mm long, the tip inflexed, the margins slightly imbricate throughout, prominently keeled inside along the median portion. Filaments free, 5 mm long; anthers broadly ovoid, 1 mm long. Ovary glabrous, ovoid, 1-celled; ovules 2, pendulous; style glabrous, about 3 mm long; stigma minute, obscurely 2-lobed. Fruit ovoid, glabrous, shining, 2.5 to 3 cm long, distinctly inequilateral, black, the pericarp 1 to 1.5 mm thick. Seed deeply sulcate.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33267* (type), *33308 Ramos*, August 20, 1918, on forested slopes, altitude about 1,000 meters.

This species is apparently allied to *Villaresia suaveolens* (Blume) Val., the type of the genus *Pleuropetalon* Blume and of the genus *Chariessa* Miq., from which it is perhaps best distinguished by its long petioles; I have seen no specimen of Blume's species and all of the published descriptions are incomplete.

VILLARESIA LATIFOLIA sp. nov.

Arbor alta, inflorescentiis exceptis glabra; foliis crasse coriaceis, nitidis, obovatis ad oblong-obovatis, usque ad 18 cm longis et 11 cm latis, integris, abrupte et brevissime acuminatis, basi acutis ad decurrento-acuminatis, nervis utrinque 5 vel 6, petiolo 1 ad 1.5 cm longo; infructescentiis anguste pyramidatis, 10 ad 15 cm longis, ramis inferioribus usque ad 5 cm longis; fructibus ovoideis, aequilateralibus, 2 cm longis.

A large tree, glabrous except the somewhat hirsute inflorescences. Leaves thickly coriaceous, shining, obovate to oblong-obovate, 12 to 18 cm long, 6 to 11 cm wide, entire, the apex broad, abruptly and shortly acuminate, base acute to decurrent-acuminate, equilateral; lateral nerves 5 or 6 on each side of the midrib, curved-ascending, anastomosing, the reticulations lax; petioles 1 to 1.5 cm long. Infructescences terminal, solitary, narrowly pyramidal, 10 to 15 cm long, tripinnately paniculate, the primary branches racemosely arranged, numerous, rather crowded, the lower ones up to 5 cm in length, the uppermost ones simple, about 1 cm long. Fruits (not quite mature) ovoid, equilateral or nearly so, brown and shining when dry, about 2 cm long. Seed deeply longitudinally sulcate.

SAMAR, Catubig River at Pinipisakan, *Bur. Sci. 24557 Ramos*, March 21, 1916, in damp forests near the river at low altitudes, with the Visayan name *malaampipi*, distributed as an unidentified representative of the *Menispermaceae*.

The type of the genus *Villaresia* is a tropical American plant, and after a critical study of the two Philippine forms I am in entire agreement with Bentham and with Valeton in reducing to it the genus *Chariessa* Miquel, which was based on *Pleuropetalon* Blume (non *Pleuropetalum* Hook.), the type of which was a Javan specimen. Engler maintains *Chariessa* as a genus distinct from *Villaresia* chiefly on the basis that the petals of the latter are imbricate and those of the latter are valvate. Blume described the petals of the Javan form as imbricate, while in *Villaresia philippinensis* the petals are distinctly although not prominently imbricate throughout. There appears to be no other character by which the two genera can be distinguished. The genus *Villaresia* has about ten known species in tropical America, one in tropical Africa, one in Java, two in Australia, one in Polynesia, and two in the Philippines.

MIQUELIA Meissner

MIQUELIA PHILIPPINENSIS sp. nov.

Frutex scandens, ramulis junioribus hirsutis; foliis membranaceis, ovatis, 7 ad 11 cm longis, basi late rotundatis et plus minusve cordatis, apice acuminatis, margine integris vel repandis; inflorescentiis ♀ axillaribus, pedunculatis, floribus umbellatim dispositis; fructibus immaturis oblongo-ellipsoideis, 1 ad 1.3 cm longis, longe stipitatis.

A scandent shrub, the young branchlets hirsute. Leaves membranaceous, ovate, olivaceous, 7 to 11 cm long, 5 to 9 cm wide, base broadly rounded and usually shallowly cordate, apex somewhat acuminate, margins entire or somewhat repand; lateral nerves 5 or 6 on each side of the midrib, slender, distinct, the basal ones scarcely distinguishable from the others, reticulations lax; petioles pubescent when young, soon becoming glabrous, 3 to 7 cm long. Pistillate inflorescences axillary, their peduncles about 3 cm long, each bearing usually about 7 umbellately arranged flowers, their pedicels 5 mm long, each subtended by a lanceolate, acuminate, sparingly hirsute bracteole, 1 to 1.5 mm long. Sepals oblong, obtuse, 2.5 mm long. Fruits (immature) slightly pubescent, oblong-ellipsoid, 1 to 1.3 cm long, narrowed below into a pseudostalk as long as the fruit proper.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32885 Ramos*, August 6, 1918, in rocky forests at low altitudes.

This is the second species of the genus to be found in the Philippines and differs from *Miquelia cumingii* notably in its umbellately arranged, not capitate, pistillate flowers.

SAPINDACEAE

ALLOPHYLUS Linnaeus

ALLOPHYLUS STENOPHYLLUS sp. nov.

Frutex erectus, ramulis foliisque plus minusve pubescens, ramis glabris, lenticellatis; foliis 5-foliolatis, foliolis chartaceis, angustissime lanceolatis, 5 ad 10 cm longis, 1 ad 1.5 cm latis, tenuiter acuminatis, margine distanter serratis, supra subglabris, subtus ad costa nervisque leviter pubescentibus, axillis dense barbatis; racemis axillaribus, 7 ad 5 cm longis; fructibus subellipsoideis, circiter 5 mm longis.

A small erect shrub, the branches glabrous, brownish, distinctly lenticellate, the branchlets paler and somewhat appressed-pubescent. Leaves palmately 5-foliolate, their petioles 4 to 6 cm long, appressed-pubescent with short hairs; leaflets chartaceous, very narrowly lanceolate, 5 to 10 cm long, 1 to 1.5 cm wide, slenderly acuminate, base decurrent-acuminate, margins rather distantly serrate, the upper surface pale-olivaceous, shining, glabrous or very slightly pubescent especially on the midrib, the lower surface paler, sparingly pubescent on the midrib and nerves, densely bearded in the axils; petiolules of the central leaflets 5 to 10 mm long, the lateral leaflets subsessile. Racemes axillary, solitary, sparingly pubescent, 5 to 7 cm long. Fruits rather numerous, subellipsoid, brown when dry, very slightly pubescent, about 5 mm long.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32839 Ramos*, August 29, 1918, in dry thickets at low altitudes.

This species manifestly belongs in the group with *Allophylus dimorphus* Radlk., from which I do not consider that *A. quinatus* Radlk. can be specifically distinguished. *Allophylus stenophyllus* differs from all forms of the above species in its very narrowly lanceolate leaflets, which are nearly glabrous on both surfaces and which attain a length of 10 cm but do not exceed 1.5 cm in width.

GUIOA Cavanilles

GUIOA PARVIFOLIOLA sp. nov.

Frutex, partibus junioribus foliisque plus minusve pubescens; foliis 10 cm longis, foliolis plerumque 6, anguste oblongis, obtusis, coriaceis, 2 ad 4 cm longis, 6 ad 15 mm latis, basi angustatis, apice obtusis, vetustioribus supra glabris, nervis utrinque

8 ad 10; capsulis late obovatis, 3-lobatis, circiter 1 cm longis et 1.3 cm latis, lobis late rotundatis, apice retusis apiculatisque.

A shrub, the younger parts and the young leaves more or less pubescent, the older leaves glabrous or nearly so, at least on the upper surface. Leaves 10 cm long or less, the rachis and petiolules puberulent; leaflets usually 6, narrowly oblong, coriaceous, 2 to 4 cm long, 6 to 15 mm wide, obtuse, narrowed below to the somewhat decurrent-acuminate base, the upper surface dark-olivaceous, glabrous, the lower surface much paler and, at least when young, more or less pubescent with scattered short hairs; lateral nerves 8 to 10 on each side of the midrib, prominent on the lower surface; petiolules 2 to 5 mm long. Infructescences axillary, 3 to 5 cm long, pubescent, the branches few. Capsules broadly obovate, 3-lobed, apex more or less retuse and distinctly apiculate, about 1.3 cm wide and nearly 1 cm long, the lobes broadly rounded, red, glabrous. Seeds obovoid, smooth, shining, about 6 mm long.

LUZON, Ilocos Norte Province, Mount Nagapatan, *Bur. Sci. 33187 Ramos*, August 8, 1918, on dry slopes, altitude about 700 meters.

The alliance of this species is manifestly with *Guioa obtusa* Merr., from which it radically differs in its very much smaller, relatively much narrower leaflets.

ELAEOCARPACEAE

ELAEOCARPUS Linnaeus

ELAEOCARPUS ILOCANUS sp. nov. § *Dicera*.

Arbor parva inflorescentiis densissime ferrugineo-pubescens; foliis ellipticis ad obovato-ellipticis, glabris, olivaceis, nitidis, 4 ad 7 cm longis, basi acutis, apice breviter obtuse acuminatis, margine distanter apiculato-crenatis, nervis utrinque circiter 7, distinctis; racemis numerosis, solitariis, plerumque e axillis defoliatis, 5 cm longis; floribus 5-meris, 8 mm longis; sepalis lanceolatis, pubescentibus; petalis glaberrimis, usque ad ½ laciniatis, laciniae circiter 20; staminibus circiter 25, antheris oblongis, obtusis, apice parce ciliatis; ovario pubescente, 3-loculare; fructibus ellipsoideis, 2.5 cm longis, 1-locellatis.

A tree, about 5 m high, the inflorescences very densely ferruginous-pubescent, the branches terete, glabrous, the very young branchlets either more or less pubescent or glabrous. Leaves elliptic to obovate-elliptic, olivaceous and shining on the upper surface, the lower surface paler, 4 to 7 cm long, 2 to 3.5 cm wide, base acute, apex shortly and obtusely acuminate, margins distantly apiculate-crenate; lateral nerves about 7 on each side

of the midrib, prominent; petioles glabrous, 1 to 1.3 cm long, racemes numerous, solitary, chiefly from the axils of fallen leaves, about 5 cm long, usually 6- to 10-flowered. Flowers pink, about 8 mm long, 5-merous, their pedicels 5 to 6 mm long, densely pubescent. Sepals lanceolate, 7 mm long, densely pubescent. Petals entirely glabrous, 7 to 8 mm long, cuneate, split to about the middle into three primary divisions, these again divided, the ultimate laciniae about 20, slender. Stamens about 25, filaments 1 to 1.5 mm long, anthers narrowly oblong, 1.5 to 1.8 mm long, minutely scabrid, the cells slightly unequal, obtuse, sparingly ciliate at their tips. Ovary ovoid, densely pubescent, 3-celled. Fruit ellipsoid, about 2.5 cm long, black when dry, one-celled.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33271 Ramos,* August 21, 1918, on forested slopes near the summit, altitude about 1,000 meters.

This species somewhat resembles both *Elaeocarpus cumingii* Turcz. and *E. forbesii* Merr., differing radically from the former in its very densely pubescent racemes and sepals and from the latter in its much longer racemes and entirely glabrous petioles.

SLOANEA Linnaeus

SLOANEA JAVANICA (Miq.) Szyszyl. ex K. Schum in Engl. & Prantl. Nat. Pflanzenfam. 3[6] (1890) 5; Koord. & Val. Bijdr. Boom. Java 1 (1894) 239, Atlas Baumart. Java 3 (1914) *f. 433* (after Miquel).

Phoenicospermum javanicum Miq. Ann. Mus. Bot. Lugd.-Bat. 2 (1865) 68, *t. 3.*

LUZON, Cagayan Province, Pamplona, *For. Bur. 14713 Darling,* March 17, 1909; Pamplona, *For. Bur. 16988 Bacani,* March, 1907: Laguna Province, Cavinti, *For. Bur. 19665 Racelis,* August, 1912, with mature fruits. MINDORO, Iholo River, *For. Bur. 11482 Merritt,* May, 1908, sterile. A tree, 10 to 25 m high, in forests up to an altitude of 600 meters.

This species has previously been known only from Java, where it is apparently very rare, as until recently it was known only from trees cultivated in the botanical garden at Buitenzorg; it is now known from Depok, near Buitenzorg, *Koorders 42807,* a duplicate of Koorders' specimen being before me. The Philippine specimens have somewhat larger and more prominently acuminate leaves than the Javan material, while the fruits are a little larger. In the absence of flowers I can detect no differential characters of sufficient importance to warrant the separation of the Philippine form from the Javan one. The genus is new to the Philippines.

Szyszylowicz does not make the transfer of *Phoenicospermum javanicum* Miq. to *Sloanea* in his paper "Zur Systematik der Tiliaceen" [3] as indicated by Koorders and Valeton, but merely reduces the genus *Phoenicospermum* to *Sloanea*.

STERCULIACEAE

PTEROSPERMUM Schreber

PTEROSPERMUM MEGALANTHUM sp. nov.

Arbor parva, subtus foliis et ramulis et inflorescentiis densissime ferrugineo-stellato-tomentosis; foliis oblongis, inaequilateralibus, integris, acuminatis, supra glabris, nitidis, usque ad 15 cm longis; inflorescentiis plerumque 2-floris, floribus longe pedicellatis, circiter 6.5 cm longis; sepalis anguste lanceolatis, 6 cm longis et 1 cm latis; petalis oblique obovatis, 3 cm latis, quam sepalis paullo longioribus.

A tree, 7 to 8 m high, the branchlets, petioles, inflorescences, and the lower surface of the leaves densely stellate-tomentose with ferruginous hairs. Branches at first stellate-pubescent, soon becoming glabrous, nearly black when dry. Leaves inequilateral, oblong, chartaceous to subcoriaceous, 9 to 15 cm long, 3 to 6.5 cm wide, entire, or the margins obscurely undulate, rather sharply acuminate, the upper surface olivaceous, glabrous and shining when dry, the basal lobe of the broader side broadly rounded, of the narrower side rounded to acute, the leaf somewhat obliquely cordate; lateral nerves about 6 on each side of the midrib, excluding those extending into the broader basal lobe; petioles densely ferruginous-stellate-pubescent, 5 to 10 mm long. Inflorescences in the uppermost axils and subterminal, usually 2-flowered, the peduncles 1.5 cm long or less, the pedicels in anthesis 3 to 4 cm long, densely ferruginous-pubescent; bracts linear-lanceolate, entire, deciduous. Flowers white, fragrant, about 6.5 cm long, 5-merous. Sepals coriaceous, narrowly lanceolate, about 6 cm long, 1 cm wide, slightly acuminate, externally densely ferruginous-stellate-pubescent, inside densely subappressed fulvous-hirsute. Petals obliquely obovate, membranaceous, glabrous, about 6.5 cm long, 3 cm wide. Staminal column glabrous, 1.5 cm long. Staminodes 3 cm long. Filaments and anthers each 1.5 cm long, sometimes 2, sometimes 3 between each pair of staminodes. Ovary ovoid, densely ferruginous-villous; style glabrous, 3 cm long.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31269 Ramos & Edaño* (type), April 28, 1918; Ibahay, *For. Bur. 25359 Achacoso*,

[3] Engl. Bot. Jahrb. 5 (1885) 427–457.

April 7, 1916, along streams in open forests, altitude about 100 meters.

This species has almost exactly the vegetative characters of *Pterospermum blumeanum* Korth. (*P. javanicum* Jungh.) and the second specimen cited above, which has only immature buds, was originally so identified. While it is manifestly closely allied to Korthals's species, it differs remarkably in its larger flowers, somewhat longer and much broader sepals, and in its much larger petals, which exceed the sepals in length.

DILLENIACEAE

DILLENIA Linnaeus

DILLENIA MEGALOPHYLLA sp. nov. § *Wormia.*

Arbor, inflorescentiis exceptis glabra, ramulis ultimis 1.5 ad 2 cm diametro; foliis coriaceis, ovatis ad elliptico-ovatis, usque ad 1 m longis, apice rotundatis, basi angustatis, margine undulatis vel obscure dentatis, nervis utrinque 15 ad 18, perspicuis, lamina decurrente, basi conduplicatis; inflorescentiis axillaribus, longe pedunculatis, paucifloris, circiter 40 cm longis, dense pubescentibus; sepalis coriaceis, obovatis ad late ellipticis, 3 cm longis, extus molliter dense fulvo-pubescentibus; carpellis plerumque 8.

A tree, about 7 m high, nearly glabrous except the inflorescences, the ultimate branches 1.5 to 2 cm in diameter. Leaves coriaceous, ovate to elliptic-ovate, up to 1 m long and 60 cm wide, apex rounded, base gradually narrowed, margins somewhat undulate and obscurely toothed, glabrous on both surfaces, what is apparently the petiolar part of the leaf with the lamina continuous but with much slenderer nerves than the leaf proper, extending to the very base of the petiole, conduplicate, the upper surface for a distance of about 2.4 cm on each side of the midrib closely appressed and with a modified, brown, apparently absorbent epidermis, this region in some leaves inhabited by colonies of ants, the lower surface of this conduplicate area rather softly pubescent; lateral nerves above the modified petiolar part of the lamina very prominent, 15 to 18 on each side of the midrib. Inflorescences in the uppermost axils, long-peduncled, few-flowered, sparingly branched above, about 40 cm long, densely and softly pubescent; pedicels 3 to 5 cm long. Sepals coriaceous, obovate to broadly elliptic, rounded, concave, about 3 cm long, softly and densely fulvous-pubescent externally. Petals not seen. Stamens apparently equal or subequal. Carpels usually 8, glabrous, not twisted, the styles up to 3 cm long. Immature carpels coriaceous, about 3 cm long, apparently purplish, dehiscent; ovules about 11 in each carpel; immature seeds with a small basal aril.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33034 Ramos*, August 21, 1918, in forests near the sea at low altitudes.

This species is remarkable for its exceedingly large leaves, which attain at least 1 meter in length. It belongs in the group with *Dillenia suffruticosa* Grieff. and like that species has a portion of the upper surface of the decurrent basal part of the lamina conduplicate and supplied with a modified, apparently absorbent, epidermal tissue. Among the Philippine species it is most closely allied to *Dillenia papyracea* Merr., of Basilan, from which it is readily distinguished by its very much larger leaves, softly pubescent inflorescences and sepals, and fewer carpels.

SAURAUIA Willdenow

SAURAUIA SANTOSII sp. nov.

Arbor 7 ad 9 m alta, *S. eleganti* affinis, differt floribus majoribus, 1.5 ad 2 cm diametro, confertis, foliis subtus densissime fulvo-ferrugineo-lanatis.

A tree, 7 to 9 m high, the branches brown, setose, and densely ferruginous-tomentose, the setae comparatively few, filiform, 4 to 7 mm in length, ascending. Leaves thickly coriaceous, rigid, oblong, 13 to 18 cm long, 5.5 to 7 cm wide, obtuse, the base rounded, cordate, often somewhat oblique, the margins with small, thick, rounded teeth, these often terminating in filiform, deciduous setae, the upper surface brown, glabrous, shining, rugose-pustulate, the nerves impressed, the lower surface very densely fulvous-ferruginous-lanate, the indumentum covering the whole surface, midrib, and nerves, the midrib and nerves also with few, scattered, filiform setae; lateral nerves 25 to 30, prominent, projecting; petioles 2 to 4 cm long, setose and tomentose. Inflorescences axillary, long-peduncled, cymose, the flowers crowded, the peduncles 10 to 12 cm long, densely tomentose and rather sparingly setose, the cymes compact, 4 to 5 cm in diameter. Flowers white, 1.5 to 2 cm in diameter, their pedicels up to 5 mm in length, setose and tomentose. Sepals broadly ovate, obtuse or rounded, 5 mm in diameter, the outer ones thickly coriaceous, densely villous and setose, the setae slender, up to 2 mm in length, the inner ones thinner, rather sparingly villous and not setose. Petals oblong-obovate, rounded, about 11 mm long and 7 mm wide. Ovary glabrous; styles 2, free to the base, 4 mm long.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31937 Santos*, May 16, 1918, on slopes, altitude about 2,200 meters.

This species is manifestly allied to *Saurauia elegans* (Choisy)

F.-Vill., from which it is readily distinguished by its dense indumentum, its compact cymes, and its much larger flowers. The two styles are constant in all the flowers examined, *Saurauia elegans* normally having three styles, although in some flowers they are reduced to two.

FLACOURTIACEAE

HOMALIUM Jacquin

HOMALIUM RAMOSII sp. nov. § *Myriantheia.*

Arbor, inflorescentiis exceptis glabra; foliis oblongis ad oblongo-ellipticis, subcoriaceis, integris nitidis, 6 ad 10 cm longis, basi acutis, apice obtuse acuminatis, nervis utrinque circiter 7; inflorescentiis axillaribus terminalibusque, racemosis vel depauperato-paniculatis, usque ad 10 cm longis; floribus fasciculatis, 5-meris, 6 ad 7 mm diametro, petalis oblongis ad oblongo-obovatis; staminibus 15.

A small tree, glabrous except the inflorescences, the branches terete, brownish. Leaves oblong to oblong-elliptic, subcoriaceous, shining, entire, 6 to 10 cm long, 3 to 4.5 cm wide, subequally narrowed to the acute base and acuminate apex, the acumen blunt, short; lateral nerves about 7 on each side of the midrib, arched, anastomosing, distinct as are the reticulations; petioles 5 to 8 mm long. Racemes axillary and terminal, solitary or forming sparingly branched inflorescences, the individual ones up to 10 cm long, cinereous-pubescent, the flowers mostly fascicled at the nodes, usually 2 or 3 in a fascicle, their pedicels 3 to 4 mm long, jointed with the calyx; bracteoles narrowly lanceolate, about 2 mm long. Flowers white, 5-merous, 6 to 7 mm in diameter. Sepals and petals about 2.5 mm long, pubescent, rather densely so inside, oblong to narrowly oblong-obovate. Stamens 15, three opposite each petal, their filaments about 2 mm long, glabrous. Ovary very densely pubescent, styles about 1.8 mm long, villous below.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 32985 Ramos,* August 12, 1918, on slopes, altitude about 450 meters.

This species has much the vegetative characters of *Homalium multiflorum* Merr. but belongs in a different section of the genus and is most closely allied to *H. samarense* Merr., from which it differs in its much shorter indumentum on its inflorescences; its smaller flowers, which are fascicled and not solitary along the racemes; and its entire leaves. In the present species occasional leaves are found presenting very few greatly reduced marginal teeth, but most of the leaves are quite entire.

BEGONIACEAE

BEGONIA Linnaeus

BEGONIA COLLISIAE sp. nov. § *Diploclinium.*

Herba, pedunculis foliisque utrinque ad nervis plus minusve ferrugineo-villosis; foliis longe petiolatis, in ambitu late ovatis, usque ad 20 cm longis, inaequilateralibus, basi lateraliter cordatis, apice leviter acuminatis, profunde subpalmatim lobatis, lobis numerosis, oblongis, 2 ad 5 cm longis, irregulariter et grosse dentato-serratis vel lobulatis; inflorescentiis longe pedunculatis, dichotome ramosis, parce glandulosis, paucifloris; floribus circiter 3 cm diametro; sepalis late ovatis, circiter 11 mm latis; petalis sepalis aequantibus, 6 ad 7 mm latis.

An herb, from short, rather stout, prostrate rhizomes about 1 cm in diameter. Leaves long-petioled, in outline broadly ovate, 15 to 20 cm long, 10 to 15 cm wide, when dry submembranaceous, the upper surface olivaceous, somewhat shining, the lower brownish, both surfaces more or less ferruginous-villous on the nerves, when fresh the nerves beneath red, inequilateral, subpalmately and conspicuously lobed, the lobes oblong, 2 to 5 cm long, 2 to 3 cm wide below, all acute or acuminate and irregularly and coarsely dentate-serrate or lobulate, the primary lobes usually about 10, the base of the leaf laterally cordate, the sinus narrow, 2 to 4 cm deep, the basal lobes broadly rounded, often overlapping; petioles brown when dry, ferruginous-villous. Peduncles nearly glabrous, up to 20 cm in length, the younger parts sparingly glandular, dichotomously branched at the apex, the primary branches about 4 cm long, few-flowered. Staminate flowers pink and white, about 3 cm in diameter. Sepals broadly ovate, about 14 mm long, 11 mm wide, rounded, with few, small, widely scattered, brown glands. Petals oblong-obovate, as long as the sepals, 6 to 7 mm wide. Stamens many, the anthers narrowly obovoid, 0.8 mm long, equaling or shorter than the filaments. Pistillate flowers and fruits unknown.

PANAY, Capiz Province, Libcacao, *Bur. Sci. 31469 Ramos & Edaño,* May 5, 1918, on stream banks in forests.

This species is remarkably distinct from all previously described Philippine ones in the section *Diploclinium,* and is strongly characterized by its deeply lobed leaves, the lobes being usually about 10 in number, up to 5 cm in length, and coarsely and irregularly toothed and lobulate.

BEGONIA LANCILIMBA sp. nov. § *Diploclinium.*

Herba glaberrima; foliis longe petiolatis, membranaceis, oblongis ad oblongo-lanceolatis, sub-aequilateralibus, usque ad

13 cm longis, basi rotundatis, leviter cordatis, apice tenuiter caudato-acuminatis, margine irregulariter dentatis; petiolo 15 cm longo; inflorescentiis foliis subaequantibus, paucifloris; floribus ♂ circiter 3 cm diametro.

An entirely glabrous herb, the rhizomes creeping, simple, about 5 mm in diameter, supplied with numerous, lanceolate, caudate-acuminate, brown stipules, 1 to 1.5 cm in length. Leaves pale-green on both surfaces when fresh, when dry membranaceous, somewhat shiny, oblong to oblong-lanceolate, nearly equilateral, 7 to 13 cm long, 2.5 to 4 cm wide, base rounded and very slightly cordate, narrowed upward from the lower one-third to the slenderly caudate-acuminate apex, the margin irregularly toothed, a few of the teeth rather large, most of them small; basal nerves about 8 ascending, a few lateral nerves leaving the midrib at and above the middle; petioles about 15 cm long. Peduncles of the staminate inflorescences 19 to 24 cm long, usually with 2 short branches at the apex, each bearing about 2 relatively large white flowers about 3 cm in diameter. Sepals 2, oblong-elliptic rounded, about 1.8 mm long, 10 mm wide. Petals narrowly oblong, equaling the sepals, 3 to 3.5 mm wide, rounded. Stamens about 35, the anthers oblong, about 1.5 mm long; filaments about 1 to 2 mm long.

PANAY, Antique Province, Culasi, *Bur. Sci. 32232* (type), *32570, 32286 McGregor,* June 14 and July 14, 1918, on forested slopes, altitude 900 to 1,000 meters.

This species is not closely allied to any previously described Philippine form and is very strongly characterized by being entirely glabrous; by its nearly equilateral, oblong-lanceolate to lanceolate, caudate-acuminate leaves which are slightly cordate at the base; by its long peduncles; and its few, comparatively large, white flowers.

BEGONIA OBTUSIFOLIA sp. nov. § *Diploclinium.*

Herba prostrata, petiolis et subtus foliis ad nervis adpresse ferrugineo-pubescentibus; foliis longe petiolatis, oblongis, inaequilateralibus, 7 ad 10 cm longis, apice obtuse rotundatis, basi leviter oblique cordatis, margine late lobatis vel undulatis, lobis rotundatis; inflorescentiis quam foliis longioribus, paucifloris; floribus ♂ circiter 3 cm diametro; capsulis aequaliter 3-alatis, junioribus circiter 14 mm latis et 10 mm longis, apice subtruncatis, basi rotundatis.

Rhizomes slender, creeping, the petioles and nerves on the lower surface of the leaves appressed ferruginous-pubescent.

Leaves oblong to oblong-ovate, distinctly inequilateral, 7 to 10 cm long, 3.5 to 4.5 cm wide, the upper surface glabrous, somewhat shiny, somewhat narrowed upward to the obtusely rounded apex, the base somewhat obliquely cordate, the sinus shallow, narrow, the margin on the narrower side usually with 1 or 2 short obtuse lobes, on the broader side with from 2 to 4 similar lobes or undulations; basal nerves usually 6, slender, distinct; petioles slender, 10 to 13 cm long. Peduncles 18 to 24 cm long, glabrous, dichotomously branched at the apex, the primary branches up to 3 cm in length, few-flowered. Flowers pink, the sepals of the staminate ones broadly ovate, rounded, about 14 mm long, 11 mm wide. Petals equaling the sepals, narrowly oblong, 4 mm wide. Pistillate flowers as large as the staminate ones, the young capsules equally 3-winged, about 14 mm wide and 10 mm long including the wings, base rounded, apex somewhat truncate.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30803, Ramos & Edaño,* April 19, 1918, on stones in damp forests.

In the form and characters of its leaves this species is remote from all other described ones of the section and is easily recognized by its usually oblong, rounded, obtuse leaves, which have a few short rounded lobes or undulations on each side.

BEGONIA RUBRIFOLIA sp. nov. § *Diploclinium.*

Herba prostrata, rhizomate brevibus, petiolis et subtus foliis ad nervis plus minusve ferrugineo-lanatis; foliis integris, inaequilateralibus, late ovatis, chartaceis, in siccitate utrinque rubris, in vivo supra viridis, subtus rubris, usque ad 9 cm longis, basi lateraliter cordatis, palmatim 8-nerviis, nervis conspicuis, apice late acutis; infructescentiis 20 ad 30 cm longis, quam foliis multo longioribus, dichotome ramosis; capsulis paucis, inaequaliter 3-alatis, circiter 12 mm longis et 2.3 mm latis, apice truncatis, basi rotundatis.

A prostrate herb, the rhizomes short, stout, brown, glabrous. Leaves chartaceous, when fresh green on the upper surface, red beneath, when dry uniformly reddish-purple on both surfaces, the upper surface glabrous, the lower densely white- or grayish-punctate, rather densely ferruginous-lanate on the nerves, broadly ovate, inequilateral, entire, 8 to 10 cm long and nearly as wide, the apex broadly acute, base laterally cordate and palmately 8-nerved, the nerves conspicuous, margins ciliate, the sinus narrow, basal lobes broadly rounded; petioles sparingly ferruginous-lanate, 7 to 11 cm long; stipules oblong-ovate, some-

what ciliate, about 1 cm long, and with a few fimbriate-ciliate paleae. Infructescences long-peduncled, 20 to 30 cm long, nearly glabrous, dichotomously branched at the apex of the peduncle, the primary branches about 5 cm long. Capsules few, including the wings about 12 mm long and 23 mm wide, inequally 3-winged, one wing about twice as large as the other two, the apex subtruncate, base broadly rounded, the outer upper angles of the wings rounded or obtuse.

PANAY, Antique Province, Culasi, *Bur. Sci. 32430 McGregor*, June 7, 1918, altitude about 1,000 meters.

This species is allied to *Begonia copelandii* Merr. and *B. alvarezii* Merr., but its indumentum is very different from both. The leaves are characteristically reddish-purple on both surfaces when dry.

BEGONIA SERPENS sp. nov. § *Diploclinium.*

Herba prostrata, repens, leviter ciliatis, internodiis 1 ad 3 cm longis; foliis breviter petiolatis, irregulariter rhomboideis, inaequilateralibus, 1.5 cm diametro, basi leviter cordatis, apice acutis vel acuminatis, margine irregulariter lobatis; inflorescentiis paucifloris, circiter 3 cm longis; floribus ♂ circiter 1.5 cm diametro.

A very small, slender, prostrate, sparingly appressed-ciliate herb, the rhizomes 2 mm or less in diameter, attaining a length of at least 25 cm. Leaves irregularly rhomboid, inequilateral, base more or less cordate, apex shortly acuminate, 1.5 to 2.5 cm in diameter, margins shallowly and irregularly lobed, the upper surface usually mottled with gray, glabrous, the lower surface sparingly ciliate on the nerves with appressed brown hairs, the margins more or less ciliate with short spreading hairs; petioles 1 to 1.5 cm long, sparingly ciliate; stipules brown, 5 to 6 mm long, oblong-ovate, with a long slender tip. Peduncles slender, about 3 cm long, usually 2-flowered. Staminate flowers usually pink, about 1.5 cm in diameter. Sepals broadly obovate, rounded, 7 to 8 mm long, 6 to 7 mm wide. Petals equaling the sepals, oblong-obovate, rounded, 4 mm wide. Stamens about 35; anthers oblong-obovoid, 0.8 mm long; filaments 1 mm long or less.

PANAY, Antique Province, Culasi, *Bur. Sci. 32588* (type), *32541 McGregor*, May and June, 1918, on damp forested slopes, altitude 500 to 900 meters.

This species is as closely allied to *Begonia nigritarum* Steud. as to any other but is readily distinguished by its smaller leaves, short petioles, and short, very few-flowered inflorescences as

well as by its very slender, greatly elongated rhizomes; the internodes vary from 1 to 3 cm in length.

BEGONIA PANAYENSIS sp. nov. § *Petermannia.*

Herba suffruticosa, erecta, ramosa, glabra, circiter 1.5 m alta; foliis in siccitate membranaceis, nitidis, oblongis, usque ad 20 cm longis, inaequilateralibus, apice angustatis, tenuiter acuminatis, basi rotundatis, haud cordatis, margine distanter et irregulariter dentatis; inflorescentiis terminalibus, cymoso-paniculatis, usque ad 17 cm longis; floribus ♂ numerosis, circiter 1.5 cm diametro; sepalis orbicularis, 7 ad 8 mm diametro; petalis 0; capsulis ellipticis vel obovato-ellipticis, circiter 2.5 cm longis et 2 cm latis, aequaliter 3-alatis, apice truncato-rotundatis, basi vix angustatis, rotundatis.

An erect, branched, glabrous, suffrutescent herb, about 1.5 m high, the stems and branches stout. Leaves when dry membranaceous, shining, inequilateral, oblong, 16 to 20 cm long, 4 to 6 cm wide, narrowed upward to the slenderly acuminate apex and somewhat narrowed below to the rounded base, or the narrower side of the lamina acute and the broader side rounded, not at all cordate, margins distantly and irregularly dentate, or that of the narrower side often nearly entire except near the apex; nerves prominent, ascending; petioles stout, 1 to 1.5 cm long; stipules membranaceous, oblong to oblong-lanceolate, acuminate, 1.5 to 2 cm long. Inflorescences terminal, cymose-paniculate, up to 17 cm in length, the staminate flowers numerous, the pistillate flowers apparently few and only at the base of the inflorescence, none present on the type, but represented by mature capsules. Staminate flowers pink, about 1.5 cm in diameter. Sepals orbicular, 7 to 8 mm in diameter. Petals none. Stamens about 35, the anthers narrowly oblong to oblong-obovoid, 1.2 to 1.5 mm long, longer than the filaments. Capsules one or two at the base of the inflorescence, including the three equal wings about 2.5 cm long, 2 cm wide, elliptic to obovate-elliptic, apex rounded-truncate, base scarcely narrowed, usually rounded; pedicels 1.5 to 2 cm long.

PANAY, Antique Province, Culasi, *Bur. Sci. 32309 McGregor,* June 8, 1918, in forests along cool mountain streams, altitude about 250 meters.

This unusually robust species is manifestly allied to *Begonia longistipula* Merr., from which it is distinguished by its larger leaves and flowers and by its much larger, differently shaped capsules.

THYMELAEACEAE

PHALERIA Jack

PHALERIA PLATYPHYLLA sp. nov.

Frutex glaber *Phaleria cumingiae* affinis differt foliis multo majoribus, circiter 25 cm longis et 9 ad 11 cm latis, floribus caulinis, fasciculatis.

An entirely glabrous shrub, the branches reddish-brown when dry. Leaves oblong to oblong-ovate, firmly chartaceous, about 25 cm long, 9 to 11 cm wide, brownish-olivaceous when dry, shining, apex slenderly acuminate, base broadly rounded; lateral nerves about 10 on each side of the midrib, distinct; petioles 1 cm long or less. Flowers white, 4-merous, in fascicles on the trunk, about 3 cm long. Perianth-lobes 4, elliptic, rounded, 8 to 9 mm long, 6.5 mm wide. Filaments 8, somewhat exserted. Immature fruit ovoid-ellipsoid, somewhat rostrate, 1.5 cm long.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30759 Ramos & Edaño,* April 22, 1918, in forests.

This species has the vegetative characters of *Phaleria perrottetiana* F.-Vill., but the flowers are entirely glabrous and are moreover borne in fascicles on the trunk. It is distinguished from *Phaleria cumingii* F.-Vill. by its much larger leaves and cauline inflorescences.

MYRTACEAE

CLOËZIA Brongniart and Gris

CLOËZIA URDANETENSIS (Elm.) comb. nov.

Photinia urdanetensis Elm. Leafl. Philip. Bot. 8 (1915) 2802.

MINDANAO, Agusan Province, Mount Urdaneta, *Elmer 13694,* September, 1912, on exposed forested ridges in the mossy forest, altitude about 1,700 meters.

The genus *Cloëzia* has hitherto been known only from New Caledonia, where it is represented by six species. The discovery of a representative of it in the Philippines adds another genus to the now remarkable list of genera that are known only from the Philippines and the islands to the south and southeast of the Archipelago, including Celebes and the Moluccas generally, New Guinea, New Caledonia, and northeastern Australia. The present species was described by Mr. Elmer as a representative of the rosaceous genus *Photinia,* but a critical examination of the type collection shows that it agrees even to the most minute details with the myrtaceous *Cloëzia.*[4] In the original description

[4] Brongniart & Gris in Ann. Sci. Nat. Bot. V 2 (1864) 134.

of Mr. Elmer the stamens are described as "about 10," but I find them to vary from 15 to 20. The ovary is two-thirds to three-fourths superior, 3-celled, each cell with about 6 ovules ascending from the inner basal angle. The apical gland of the anthers, or continuation of the connective, is unusually conspicuous, being longer than the anther-cells. The fruits of the Philippine species are as yet unknown. The leaves are distinctly *Eugenia*-like and are glandular-punctate.

TRISTANIA R. Brown

TRISTANIA OBLONGIFOLIA sp. nov.

Species *T. decorticatae* similis, differt foliis junioribus utrinque dense ferrugineo-pubescentibus, inflorescentiis et floribus dense fulvo-pubescentibus, staminibus circiter 35. Arbor circiter 5 m alta, ramis teretibus, glabris; foliis coriaceis, oblongis, in siccitate brunneis, usque ad 9 cm longis, utrinque subaequaliter angustatis, basi cuneatis, apice leviter obtuse acuminatis, nervis primariis utrinque circiter 20, tenuibus; inflorescentiis axillaribus, corymbosis, circiter 3 cm longis; capsulis glabris, subovoideis, circiter 5 mm longis.

A tree, about 5 m high, the older parts glabrous, the younger leaves very densely ferruginous-tomentose on both surfaces, the inflorescences densely fulvous-tomentose. Branches brown, smooth, terete, glabrous, the younger branchlets dark-brown. Leaves oblong, coriaceous, brown when dry, shining, of about the same color on both surfaces, glandular beneath, 6 to 9 cm long, 1.8 to 2.4 cm wide, subequally narrowed to the cuneate base and to the slightly acuminate apex, the tip obtuse or subobtuse; primary lateral nerves about 20 on each side of the midrib, slender, about equally distinct on both surfaces, not much more prominent than are the secondary ones; petioles 5 mm long or less. Inflorescences axillary, about 3 cm long, rather stout, few-flowered, densely fulvous-pubescent. Flowers about 4 mm long, their pedicels stout, pubescent, 1 to 2.5 mm long, the buds ellipsoid. Calyx ovoid, the lobes 5, ovate, obtuse, 1.2 mm long. Stamens in 5 phalanges of about 7 each, inflexed in bud. Infructescences glabrous, 4 to 5 cm long. Capsules somewhat ovoid, dark-brown, glabrous, about 5 mm long.

LUZON, Tayabas Province, Mount Binuang, *Bur. Sci. 28617 Ramos & Edaño,* May 28, 1917, on forested slopes, altitude at least 400 meters.

In the vegetative characters, other than the very densely ferruginous-tomentose young leaves, this species greatly resembles

Tristania decorticata Merr. It differs remarkably from that species in its densely pubescent, larger flowers and its stamens being arranged in phalanges of about 7 each, not in groups of threes.

MELASTOMATACEAE

MEDINILLA Gaudichaud

MEDINILLA OBLANCEOLATA sp. nov.

Frutex, ramulis et inflorescentiis et foliis subtus ad costa nervisque perspicue setoso-ciliatis; foliis ternatis, breviter petiolatis, chartaceis, oblongo-oblanceolatis, usque ad 38 cm longis, tenuiter acuminatis, deorsum valde angustatis, penninerviis, nervis utrinque circiter 6, perspicuis; inflorescentiis lateralibus, circiter 10 cm longis, pedunculatis, cylindraceo-paniculatis, ramis numerosis, circiter 2 cm longis, patulis, dichotomis; floribus 4-meris, petalis oblongo-obovatis, circiter 13 mm longis, staminibus aequalibus.

A shrub, the stems about 2 cm in diameter, the young branchlets, inflorescences, and the midrib and nerves on the lower surface more or less setose-ciliate with long, spreading, pale-brownish hairs, the ciliae up to 5 mm in length. Leaves verticillate, 3 at each node, chartaceous, oblong-oblanceolate, 35 to 38 cm long, about 10 cm wide, the apex slenderly acuminate, narrowed in the lower one-half or two-thirds to the abruptly obtuse base which is 1 cm wide or less; lateral nerves about 6 on each side of the midrib, distant, ascending, somewhat curved, the primary reticulations subparallel, distant, distinct; petioles very stout, 1 cm long or less. Inflorescences lateral from the trunks, about 10 cm long, solitary, peduncled, paniculate the primary branches numerous, densely arranged, spreading, about 2 cm long, dichotomous, sparingly ciliate, the bracteoles oblong, about 2 mm long. Flowers 4-merous, red, their pedicels about 5 mm long, petals oblong-obovate, 13 mm long. Stamens 8, equal, their filaments 8 mm long; anthers lanceolate-acuminate, 7 mm long, the dorsal appendage less than 1 mm long, the anterior ones short, curved. Fruit fleshy, glabrous, ovoid or obovoid, truncate, about 1 cm long.

PANAY, Capiz Province, Mount Madiaas, *Bur. Sci. 30703 Ramos & Edaño,* May 14, 1918.

This species is entirely distinct from all hitherto described forms and is strongly characterized by its elongated, ciliate-setose indumentum, which is dense on the young branchlets and scattered on the midrib and nerves; by its ternate, elongated,

oblong-oblanceolate, slenderly acuminate leaves which are much narrowed below and very shortly petioled; and by its cauline, paniculate, rather dense inflorescences, the panicles being subcylindric in outline.

MEDINILLA HASSELTII Blume in Flora 14 (1831) 513; Cogn. in DC. Monog. Phan. 7 (1891) 586.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 31215 Ramos & Edaño*, May 19, 1918, in forests.

Malay Peninsula, Sumatra, Borneo, and Java; not previously recorded from the Philippines.

MEMECYLON Linnaeus

MEMECYLON RAMOSII sp. nov.

Frutex glaber, circiter 2 m altus, ramis ramulisque teretibus; foliis distincte 3-nerviis, oblongis, chartaceis ad subcoriaceis, usque ad 20 cm longis, basi subacutis, apice tenuiter acuminatis; nervis lateralibus inter nervulos transversales plus minusve arcuatis, distinctis, nervis transversalis utrinque circiter 14; petiolo 1.5 ad 2 cm longo; infructescentiis axillaribus, cymosis, circiter 3 cm longis; fructibus ovoideis vel subglobosis, 6 ad 7 mm diametro.

An erect glabrous shrub about 2 m high, the branches and branchlets terete, the latter pale when dry, about 1 mm in diameter. Leaves oblong, chartaceous to subcoriaceous, 15 to 20 cm long, 4.5 to 6 cm wide, the upper surface olivaceous when dry, the lower surface pale; marginal nerves distinct, more or less arched between the tips of the transverse ones, the latter about 14 on each side of the midrib, prominent on the lower surface; petioles 1.5 to 2 cm long. Infructescences axillary, cymose, about 3 cm long, branched from the base or several cymes in a fascicle. Fruit ovoid to globose, 6 to 7 mm in diameter, umbellately arranged on the ultimate branchlets.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 32962 Ramos*, August 29, 1918, in forests at low altitudes.

This species belongs in the group with prominently nerved leaves, somewhat arched marginal nerves, and terete branches and branchlets. It is distinguished from all of the other Philippine species of this group by its unusually long petioles.

MEMECYLON STENOPHYLLUM sp. nov.

Frutex erectus, circiter 1 m altus, glaber, ramis ramulisque tenuibus, teretibus; foliis angustate-lanceolatis, subcoriaceis,

usque ad 11 cm longis et 1.3 cm latis, acuminatis, basi abrupte rotundatis, sessilibus vel brevissime petiolatis, in siccitate bullato-rugosis, nervis utrinque circiter 25, patulis, supra leviter immersis, reticulis obsoletis; infructescentiis terminalibus, pedunculatis, 3 ad 4 cm longis, ut videtur paucifloris, fructibus globosis, circiter 7 mm diametro.

An erect glabrous shrub, about 1 m high, the branches and branchlets slender, terete, the latter about 1 mm in diameter, the internodes 2 to 4 cm long. Leaves coriaceous, greenish-olivaceous, shining, narrowly lanceolate, 7 to 11 cm long, 6 to 13 mm wide, narrowed upward to the somewhat acuminate apex, the base abruptly rounded, sessile or subsessile, the midrib and lateral nerves somewhat impressed on the upper surface, the former very prominent beneath, the upper surface especially somewhat bullate-rugose on account of the impressed nerves; lateral nerves slender, spreading, about 25 on each side of the midrib, the reticulations obsolete. Infructescences terminal, peduncled, 3 to 4 cm long, usually trichotomously branched, the ultimate branchlets 1 cm long or less. Fruits globose, black when mature, about 7 mm in diameter, their pedicels about 2 mm long.

LUZON, Bulacan Province, Angat, *Bur. Sci. 34101 Ramos & Edaño*, March 1, 1919, on dry forested slopes at low altitudes.

This species does not closely resemble any previously described form, being remarkably well characterized by its very narrow, sessile or subsessile leaves, which are gradually narrowed upward to the somewhat acuminate apex, the base being abruptly rounded; when dry the leaves are characteristically bullate-rugose by the more or less impressed lateral nerves.

OTANTHERA Blume

OTANTHERA STRIGOSA sp. nov.

Frutex erectus, circiter 1 m altus, ramis ramulisque teretibus, parce adpresse strigosus, ramulis tenuibus; foliis oblongis, usque ad 9 cm longis, chartaceis, utrinque subaequaliter angustatis, basi acutis vel acuminatis, apice acuminatis, supra perspicue adpresse strigosis, subtus, nervis parce strigosis exceptis, glabra; nervis 5; inflorescentiis plerumque 3-floris, bracteis lanceolatis, acuminatis, 5 ad 7 mm longis; floribus 5-meris, calycis perspicue penicellatis, setis patulis, 2 ad 3 mm longis, lobis anguste oblongis, tubo aequantibus; petalis circiter 1.5 cm longis, obovatis.

An erect shrub, about 1 m high, the branches and branchlets slender, terete, brownish when dry, sparingly appressed strigose.

Leaves oblong, chartaceous, 5 to 9 cm long, 1.5 to 2.5 cm wide, subequally narrowed to the acute or acuminate base and to the acuminate apex, chartaceous, the upper surface olivaceous when dry, conspicuously appressed strigose, the lower surface paler, glabrous except for the sparingly appressed strigose nerves, occasionally the primary reticulations with very few short processes; nerves 5, distinct, the inner pair reaching the apex, the marginal pair evanescent above the upper two-thirds. Inflorescences terminal, usually 3-flowered, the pedicels 1 to 1.5 cm long; bracts lanceolate, acuminate, strigose, 5 to 7 mm long. Calyx-tube ovoid, 7 to 8 mm long, conspicuously penicillate, the setae simple, spreading, 2 to 3 mm long, somewhat scattered; calyx lobes 5, as long as the tube, narrowly oblong, setose. Petals purplish, obovate, about 1.5 cm long, their apices sparingly penicillate. Stamens 10, equal; filaments 6 mm long; anthers lanceolate, 5 mm long, the anterior basal appendages nearly round, glandlike, the connectives not at all produced.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33079 Ramos*, August 29, 1918, on forested slopes near small streams at low altitudes.

This species is readily distinguished from its congeners by its appressed-strigose branches, branchlets, and leaves, the latter being nearly glabrous on the lower surface except for the sparingly strigose nerves.

ASTRONIA Noronha

ASTRONIA BRACHYBOTRYS sp. nov.

Frutex vel arbor parva, ramulis junioribus et inflorescentiis leviter castaneo-furfuraceis; foliis coriaceis, rigidis, viridibus, oblongo-ellipticis, minute verruculosis, 5 ad 6 cm longis, utrinque subaequaliter angustatis, basi 3-nerviis, apice acuminatis; paniculis brevissime pedunculatis, 2 ad 3 cm longis, paucifloris, ramis usque ad 1 cm longis; floribus ♂ urceolatis, calycis tubo 2.5 mm longo, lobis reniformibus.

A shrub or small tree, the very young branchlets and inflorescences somewhat castaneous-furfuraceous, otherwise glabrous, the branches and branchlets terete, rather slender. Leaves coriaceous, rigid, oblong-elliptic, green on both surfaces, usually brownish-olivaceous when dry and minutely verruculose, 5 to 6 cm long, 2 to 3 cm wide, subequally narrowed to the acute base and to the distinctly acuminate apex, base prominently 3-nerved and with an additional very slender marginal pair, the latter not more prominent than are the transverse nervules, the pri-

mary lateral nerves anastomosing with the midrib in the acumen, when young the nerves beneath with few, scattered, furfuraceous-castaneous scales, soon becoming glabrous; petioles 1.5 to 2 cm long, glabrous. Panicles terminal, shortly peduncled, rather few-flowered, 2 to 3 cm long, the primary branches few, 1 cm long or less, the flowers somewhat crowded at the apices of the branchlets. Perfect flowers shortly pedicelled, urceolate, the calyx-tube about 2.5 mm long, the limb spreading and about 4.5 mm in diameter, the lobes reniform. Petals obovate, about 3 mm long. Staminate flowers similar to the pistillate ones but the calyx-tube broadly cup-shaped.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33279* (type), *33278, 33266 Ramos,* August 21, 1918, in forests, altitude about 1,000 meters.

This species is allied to *Astronia pachyphylla* Merr., *A. verruculosa* Merr., and *A. pauciflora* Merr., being distinguished from the first by its smaller, differently shaped leaves and its castaneous-furfuraceous inflorescences and it further lacks the characteristic large bracts of *A. pachyphylla;* the leaves and flowers are much smaller than are those of *A. verruculosa;* while *A. pauciflora* is distinguished, among other characters, by its densely lepidote branchlets and inflorescences.

ARALIACEAE

SCHEFFLERA Forster

SCHEFFLERA OBTUSIFOLIA sp. nov. § *Euschefflera, Heptapleurum.*

Frutex erectus, ramulis inflorescentiisque exceptis glaber; foliis brevissime petiolatis, palmatim 7- ad 9-foliolatis, foliolis coriaceis, oblongo-obovatis, integris, 8 ad 15 cm longis, apice plerumque rotundatis, basi acutis; inflorescentiis breviter pedunculatis, ramis primariis racemose dispositis, 18 ad 24 cm longis, leviter pubescentibus; umbellulis numerosis, racemose dispositis, 8- ad 12-floris pedunculis usque ad 1 cm longis; floribus 5-meris; fructibus ellipsoideis ad oblongo-ellipsoideis, 5 mm longis, 5-sulcatis.

An erect shrub, about 2 m high, glabrous except the somewhat pubescent branchlets and slightly pubescent inflorescences. Leaves very short-petioled, 7- to 9-foliolate; leaflets coriaceous, shining when dry, oblong-obovate, entire, 8 to 15 cm long, 4 to 6.5 cm wide, the apex usually rounded, narrowed below to the acute base; primary lateral nerves 7 to 10 on each side of the midrib, the nerves and reticulations distinct on both surfaces; petiolules 3.5 to 8 cm long; petioles stout, 1 to 1.5 cm long. In-

florescence terminal, shortly peduncled, the peduncle and axis 4 to 7 cm long, the former glabrous or nearly so, the bracts subtending the branches deciduous; primary branches 8 to 15, racemosely arranged, 18 to 24 cm long, slightly pubescent, spreading-ascending; umbels numerous, racemosely arranged on the primary branches, 8- to 12-flowered, their peduncles up to 1 cm in length; the pedicels in flower, 2 to 3 mm long, in fruit somewhat longer. Flowers 5-merous, white. Calyx obconic, truncate, about 2.5 mm in diameter. Petals 5, ovate, acute, 2 mm long, somewhat 3-nerved. Filaments 3.5 to 4 mm long. Fruits ellipsoid to oblong-ellipsoid, about 5 mm long, 5-angled or sulcate, 5-celled.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32912* (type), *32901 Ramos,* July, 1918, on rocks in dry thickets at low altitudes. *Bur. Sci. 33207 Ramos* from Mount Nagapatan, Ilocos Norte Province, Luzon, perhaps represents a form of the same species but the leaflets are smaller, while the petioles vary from 2 to 6 cm in length; this number was collected at an altitude of about 800 meters, growing on tree trunks.

This species is most closely allied to *Schefflera brevipes* Merr. and is one of the very few Philippine species with short petioles. It is distinguished from *S. brevipes* by its smaller and much fewer-nerved leaflets; its much shorter inflorescence-axis, and rather long-pedicelled, never subsessile, umbels.

SCHEFFLERA ALVAREZII sp. nov. § *Euschefflera, Heptapleurum.*

Frutex scandens, glaber, ramulis tenuibus; foliis 6-foliolatis, foliolis oblongis ad oblongo-obovatis, integris, subcoriaceis, usque ad 9 cm longis, apice tenuiter acuminatis, basi acutis, nervis utrinque 6 ad 8, subpatulis, perspicuis; inflorescentiis terminalibus, ramis primariis circiter 4, usque ad 25 cm longis; umbellulis circiter 5-floris, racemose dispositis; floribus 5-meris.

An entirely glabrous vine, the ultimate branches 4 mm in diameter or less. Leaves palmately 6-foliolate; leaflets subcoriaceous, oblong to oblong-obovate, entire, pale when dry, shining, 6 to 9 cm long, 2 to 3.5 cm wide, the apex slenderly acuminate, base acute; lateral nerves 6 to 8 on each side of the midrib, spreading or only slightly ascending, prominent on the lower surface as are the reticulations; petiolules 1 to 2.5 cm long; petioles 6 to 7 cm long. Inflorescence terminal, the rachis 2 cm long or less, bearing usually 4 primary branches up to 25 cm long. Flowers 5-merous, about 5 in each umbel, their pedicels about 3 mm long, the umbels widely scattered and racemosely

arranged on the primary branches, their peduncles 4 to 5 mm long. Calyx obovoid, truncate, about 1.2 mm long, petals oblong ovate, acute, 2.5 mm long, ovary 5-celled.

MINDANAO, Lanao District, on the Lanao–Cotabato trail, *For. Bur. 25240 Alvarez,* March 24, 1916, altitude 1,100 meters.

This species is manifestly allied to *Schefflera caudatifolia* Merr., from which it differs especially in its flowers being arranged in umbels rather than in fascicles; in its much shorter rachis and much longer primary branches; while the primary nerves of the leaves are spreading rather than ascending.

SCHEFFLERA GLOBOSA sp. nov. § *Euschefflera, Heptapleurum.*

Frutex scandens, ramulis et infructescentiis stellato-tomentosis, indumento brunneo, ramis incrassatis; foliis 6-foliolatis, longissime petiolatis, foliolis oblongis, firmiter chartaceis, integris, usque ad 44 cm longis, apice tenuiter acuminatis; inflorescentiis terminalibus, rhachibus leviter productis, ramis primariis 3 ad 5, usque ad 20 cm longis, racemose dispositis; fructibus globosis, esulcatis, 5-locellatis, 5 mm diametro, umbellulis racemose dispositis, breviter pedunculatis, fructibus confertis brevissime pedicellatis.

A scandent shrub, glabrous except the young branchlets, bracts, and infructescences, which are brown stellate-tomentose, the ultimate branches up to 1 cm in diameter. Leaves palmately 6-foliolate, their petioles inflated and clasping at the base, stout, 30 to 35 cm long; leaflets oblong, firmly chartaceous, entire, glabrous, shiny, 22 to 44 cm long, 7 to 10 cm wide, the base rounded to subacute, the apex slenderly acuminate; lateral nerves 15 to 20 on each side of the midrib, distinct as are the reticulations, anastomosing, petiolules 5 to 11 cm long. Inflorescence terminal, the rachis somewhat produced, the primary branches 3 to 5, 16 to 20 cm long, racemosely disposed, each subtended by an oblong-lanceolate, acuminate, subcoriaceous bract about 3 cm in length. Fruits globose, about 5 mm in diameter, very slightly furfuraceous, not sulcate, 5-celled, terminated by the 5 nearly sessile stigmas, arranged in short-peduncled, scattered umbels, 9 to 10 fruits crowded on each umbel, their pedicels 1 to 2 mm long, the peduncles 2 to 7 mm long, the pedicels and peduncles with the same type of indumentum as the rachis.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 30897 Ramos & Edaño,* May 21, 1918, on tree trunks in forests along streams.

This species in vegetative characters strongly resembles *Schefflera digitata* (Blanco) Merr. (*S. machranta* Merr.), but differs radically in its very short pedicels and 5-celled fruits. The

brown stellate-tomentose indumentum on the inflorescences; the globose, nonsulcate, short-pedicelled, crowded fruits; and the very long petioles are characteristic.

SCHEFFLERA PLATYPHYLLA sp. nov. § *Euschefflera, Heptapleurum.*

Frutex scandens, inflorescentiis brunneo-tomentosis; foliis 5-foliolatis, late oblongo-ovatis, integris, usque ad 34 cm longis et 17 cm latis, apice abrupte acuminatis; inflorescentiis terminalibus, ramis primariis circiter 12, usque ad 40 cm longis, racemose dispositis; floribus minutis, 5-meris, numerosis, confertis, umbellulis globosis, circiter 6 mm diametro, valde numerosis, racemose dispositis, pedunculis 5 ad 10 mm longis.

A vine, glabrous except the rather densely brown-tomentose inflorescence, the indumentum obscurely stellate, the ultimate branches about 1 cm in diameter. Leaves palmately 5-foliolate, their petioles about 15 cm long; leaflets broadly oblong-ovate, coriaceous, entire, 30 to 34 cm long, 15 to 17 cm wide, the upper surface olivaceous, shining, the lower somewhat brownish when dry, the base broadly rounded, the apex rather abruptly acuminate, the acumen up to 2 cm in length; lateral nerves about 25 on each side of the midrib, distinct as are the reticulations; petiolules stout, 5 to 8 mm long. Inflorescence terminal, the rachis stout, up to 8 cm long, bearing about 12 elongated, racemosely arranged, primary branches up to 40 cm in length, the subtending bracts oblong-ovate, up to 2.5 cm long. Flowers minute, white, 5-merous, crowded in globose umbels about 6 mm in diameter, 30 to 40 flowers in an umbel, the umbels racemosely arranged on the primary branches, about 75 on each branch, their peduncles 5 to 10 mm long; pedicels 1 to 2 mm long. Calyx pubescent, turbinate, truncate, about 1.2 mm long. Petals 5, oblong-ovate, 1.2 mm long.

PANAY, Capiz Province, Jamindan, *Bur. Sci. 30897 Ramos & Edaño,* April 17, 1918, on tree trunks in forests along streams.

This species has an indumentum similar to that of *Schefflera globosa* Merr. and is manifestly allied to that species, from which it differs radically in its much larger, wider leaflets; in the numerous, elongated, primary branches of the inflorescence; and in its very numerous, densely many-flowered, longer-peduncled umbels. Both species apparently belong in the group with *Schefflera clementis* Merr.

SCHEFFLERA SANTOSII sp. nov. § *Euschefflera, Heptapleurum.*

Frutex scandens (vel erectus ?), glaber, ramis in siccitate rugosis; foliis 3- ad 5-foliolatis, brevissime petiolatis, petiolo 1 ad 2 cm longo; foliolis subcoriaceis, in siccitate olivaceis, nitidis,

ellipticis ad oblongo-ellipticis, breviter acuminatis, integris, 6 ad 9 cm longis, nervis utrinque circiter 12, perspicuis; inflorescentiis terminalibus, rhachibus elongatis, ramis primariis 4 ad 8, racemose dispositis, usque ad 20 cm longis; umbellis distantibus, racemose dispositis, 8- ad 12-floris; floribus parvis, 5-meris.

A scandent (or erect ?), glabrous shrub, 3 to 4 m in length, the branches grayish, when dry wrinkled, the ultimate ones 5 mm in diameter or less. Leaves 3- to 5-foliolate, their petioles relatively short, 1 to 2 cm long, inflated and clasping at the base. Leaflets subcoriaceous, entire, olivaceous, shining, elliptic to oblong-elliptic, 6 to 9 cm long, 3 to 5 cm wide, subequally narrowed to the acute base and to the shortly acuminate apex; petiolules 5 to 20 mm long; lateral nerves about 12 on each side of the midrib, distinct and somewhat projecting on the lower surface, anastomosing, spreading-ascending, the reticulations lax, distinct. Inflorescence terminal, the rachis 5 to 7 cm long, the primary branches 4 to 8, racemosely disposed, alternate, up to 20 cm in length. Umbels racemosely arranged on the primary branches, 8- to 12-flowered, their peduncles up to 12 mm in length, the pedicels 1 to 4 mm long. Flowers 5-merous, white or purplish, calyx about 2 mm in diameter. Petals 5, oblong-ovate, 2 mm long.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31722 Santos,* June 1, 1918, in thickets near streams, altitude about 2,000 meters.

This species is well characterized by its very short-petioled leaves, in this character resembling *Schefflera brevipes* Merr., but differing radically from that species in its much fewer and smaller leaflets.

SCHEFFLERA PANAYENSIS sp. nov. § *Cephaloschefflera.*

Arbor, partibus junioribus plus minusve furfuraceis, foliis junioribus dense stellato-tomentosis, cito glaberrimis, ramis incrassatis; foliis 10- ad 12-foliolate, longissime petiolatis, foliolis coriaceis, oblongis, usque ad 17 cm longis, tenuiter caudato-acuminatis, nervis utrinque 10 ad 12, perspicuis; capitulis racemose dispositis, globosis, immaturis 1 ad 1.5 cm diametro, fructibus sulcatis, 5-locellatis.

A tree, about 5 m high, the very young parts densely furfuraceous, the very young leaves densely stellate-tomentose, soon becoming entirely glabrous. Ultimate branches about 1.5 cm in diameter, rugose, marked with very large petiolar scars. Leaves 10- to 12-foliolate, their petioles about 25 cm long; leaflets oblong, coriaceous, shining, 10 to 17 cm long, 3 to 3.5 cm wide,

entire, base rounded to obtuse, apex slenderly caudate-acuminate; lateral nerves 8 to 10 on each side of the midrib, anastomosing, distinct, as are the reticulations; petiolules 6 to 8 cm long. Branches of the inflorescence 40 to 45 cm long, stout, glabrous, bearing numerous, racemosely arranged, dense, globose, glabrous heads, which in young fruit are from 1 to 1.5 cm in diameter, their peduncles 1 to 1.5 cm long. Young fruits 5-sulcate, 3 to 4 mm long, 5-celled.

PANAY, Capiz Province, Mount Madiaas, *Bur. Sci. 30736, Ramos & Edaño,* May 12, 1918, in the mossy forest.

This species resembles *Schefflera catanduanensis,* but has longer inflorescence branches and is furthermore very easily distinguished by its peduncled heads.

BOERLAGIODENDRON Harms

BOERLAGIODENDRON CAUDATUM sp. nov.

Frutex circiter 2 m altus; foliis longe petiolatis, palmatim 7- ad 9-foliolatis, foliolis nitidis, lanceolatis, valde inaequalibus, 10 ad 23 cm longis, tenuiter caudato-acuminatis, basi decurrento-acuminatis, majoribus plerumque utrinque 1- vel 2-lobatis, margine irregulariter perspicue dentatis; petiolo circiter 40 cm longo, basi cristis pectinatis 2 vel 3 instructis, dentibus deflexis; inflorescentiis sessilibus, circiter 15 cm diametro, radiis primariis circiter 25; capitulis ♂ circiter 1 cm diametro, floribus confertis brevissime pedicellatis, 4-meris.

An erect shrub, about 2 m high, the leaf-bearing part of the stem at least 1 cm in diameter. Leaves long-petioled, palmately 7- to 9-foliolate; leaflets subcoriaceous, olivaceous and shining when dry, lanceolate, very unequal in size, 10 to 23 cm long, slenderly caudate-acuminate, base decurrent-acuminate, the larger ones usually deeply lobed, the lobes 1 or 2, rarely 3, extending nearly to the midrib, the margins with irregular, rather prominent, usually incurved teeth; petiolules of the larger leaflets up to 3 cm in length, the smaller leaflets sometimes nearly sessile; petioles about 40 cm long, 4 to 5 mm in diameter, the basal 1 cm supplied with 2 or 3 pectinate crests, their teeth deflexed up to 7 mm long. Inflorescence terminal, sessile, about 15 cm in diameter, composed of about 25 primary branches, each subtended by an oblong to oblong-ovate, coriaceous bract about 1.5 cm long, the primary branches about 4 cm long, glabrous, then dichotomously or trichotomously branched, the bracts subtending the branches oblong to oblong-lanceolate, about 1 cm long, somewhat setose-furfuraceous, central branch 1 to 1.5 cm long, glabrous, bearing a globose head of sterile flowers about 1 cm in

diameter, the bracteoles subtending the sterile flowers oblong, acute to obtuse, 4 to 5 mm long, coriaceous, somewhat keeled, more or less furfuraceous; lateral branches about 4 cm long, straight or somewhat geniculate at the middle, here supplied with a pair of coriaceous, somewhat setose-furfuraceous bracts, 4 to 5 mm in length; heads ellipsoid, dense, about 1 cm long, many-flowered, each flower subtended by an obovate 3 to 4 mm long bracteole, which is thickened in the median portion and rather prominently brown fimbriate-ciliate on the back and margins, and more or less inclosing the flower; pedicels 1 mm long or less. Calyx obovoid, 2 to 2.5 mm long, truncate, narrowed below, obscurely 4-angled by compression, the angles rounded. Ovary 4-celled.

LUZON, Ilocos Norte Province, Mount Palimlin, *Bur. Sci. 33308 Ramos,* August 21, 1918, on forested slopes near the summit, altitude about 1,000 meters.

This strongly marked species is most closely allied to *Boerlagiodendron catanduanense* Merr., from which it is easily distinguished by its pectinate petiolar crests; its much longer petioles; and its few-lobed caudate-acuminate leaflets, the lobes extending nearly to the midrib and ascending rather than divaricate. The inflorescence is also much larger and further differs in its furfuraceous-setose bracts and very different sterile and fertile heads.

ERICACEAE

VACCINIUM Linnaeus

VACCINIUM ILOCANUM sp. nov.

Frutex epiphyticus, inflorescentiis exceptis glaber; foliis ellipticis, crasse coriaceis, nitidis, integris, 6 ad 8 cm longis, basi acutis, apice breviter abrupteque acuminatis, nervis utrinque circiter 4, tenuibus, inferioribus adscendentibus; racemis axillaribus, solitariis, 2 ad 4 cm longis, pubescentibus; bracteis persistentibus, ovatis ad elliptico-ovatis, 5 ad 6 mm longis, acutis vel acuminatis; corolla glabris, 6 mm longa; filamentis barbatis; antheris oblongis, 1.1 mm longis.

An epiphytic shrub, entirely glabrous except the inflorescences, the branchlets about 3 mm in diameter, reddish-brown when dry. Leaves elliptic, thickly coriaceous, olivaceous and shining when dry, entire, 6 to 8 cm long, 3.5 to 5 cm wide, margins somewhat recurved, the lower surface somewhat paler than the upper and distinctly glandular-punctate, the base acute, apex acute to shortly and abruptly acuminate; lateral nerves about 4 on each side of

the midrib, slender, the lower two pairs from near the base ascending, reaching at least to the upper two-thirds of the leaf; petioles very stout, reddish-brown, 5 to 8 mm long. Racemes axillary, and sometimes terminating short lateral branches, 2 to 4 cm long, the rachis, bracts, pedicels, and calyces more or less pubescent with short spreading hairs; pedicels 3 to 4 mm long; bracts persistent, ovate to elliptic-ovate, 5 to 6 mm long, usually acute, sometimes slightly acuminate. Calyx-tube almost obsolete, the lobes triangular, acute, pubescent, 1.5 mm long. Corolla oblong-ovoid, glabrous, narrowed upward, about 6 mm long, 3.5 mm in diameter below the middle, red, the lobes short, broadly ovate, recurved. Filaments densely bearded, about 1 mm long; anthers oblong, about 1.1 mm long, the terminal tubes very short, not narrowed, opening by oblique pairs. Style stout, glabrous, 3 mm long. Top of the ovary very slightly pubescent.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33372 Ramos*, August 21, 1918, growing on trees on forested slopes near the summit, altitude about 3,100 meters.

The alliance of this species is manifestly with *Vaccinium platyphyllum* Merr., from which, among other characters, it is distinguished by its smaller, fewer-nerved leaves, shorter pedicels, and only slightly pubescent top of the ovary.

DIPLYCOSIA Blume

DIPLYCOSIA GLABRA sp. nov.

Frutex epiphyticus, glaber, vel ramulis junioribus parcissime setosis; foliis ellipticis ad oblong-ellipticis, acutis vel brevissime apiculatis, basi acutis, usque ad 6 cm longis, in siccitate olivaceo-brunneis vel pallidis, nitidis, nervis utrinque 2, tenuibus, supra leviter impressis, subtus obsoletis; floribus axillaribus, solitariis vel fasciculatis, pedicellatis, bracteolis late ovatis, 1.5 mm longis, margine leviter ciliatis, calycis circiter 2 mm longis, lobis late ovatis, obtusis, 1.5 mm longis.

A glabrous, erect, epiphytic shrub, attaining a height of from 3 to 4 m, the very young branchlets sometimes with a very few slender setae. Leaves coriaceous, elliptic to oblong-elliptic, 2 to 6 cm long, 1 to 2.5 cm wide, brownish-olivaceous or pale when dry, shining, the lower surface with small scattered, brownish glands, the base acute, the apex usually acute and ending in a short, stout, blunt apiculus; lateral nerves 2 on each side of the midrib, slender, slightly impressed on the upper surface, obsolete on the lower surface, curved, the upper pair leaving the midrib at or near the middle of the leaf, the reticulations obsolete; petioles

about 2 mm long. Flowers axillary, solitary or few in a fascicle, their pedicels about 5 mm long, the apical bracteoles connate, broadly ovate, acute or slightly acuminate, margins sparingly ciliate, 1.5 mm long. Calyx about 2 mm long, the lobes broadly ovate, obtuse, 1.5 mm long, their margins slightly ciliate. Corolla not seen. Fruit soft, fleshy, bluish-black, when dry brownish or black, about 5 mm long.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 31784 Santos* April 22, 1918 (type), *Bur. Sci. 8509 McGregor,* June, 1909, *For. Bur. 14434 Darling,* January, 1909, *Copeland, s. n.,* May, 1913, in the mossy forest, altitude about 2,300 meters. Igorot name *dugui-is.*

Among the Philippine species this is most closely allied to *Diplycosia calelanensis* Elm., from which it is readily distinguished by its nerves being obsolete on the lower surface of the leaves. Among the extra-Philippine species its alliance is manifestly with the Javan *Diplycosia heterophylla* Blume, but its leaves are different in shape, never acuminate, with shorter petioles, while the venation is distinctly different.

MYRSINACEAE

ARDISIA Swartz

ARDISIA ILOCANA sp. nov. § *Akosmos.*

Frutex, ramulis inflorescentiisque castaneo-pubescentibus exceptis glaber; foliis oblongis, membranaceis ad chartaceis, 6 ad 12 cm longis, basi acutis, apice leviter acuminatis, integris, utrinque glandulis perspicuis instructis, nervis utrinque 15 ad 20, tenuibus, subobscuris, reticulis obsoletis; inflorescentiis bipinnatim paniculatis, 8 ad 10 cm longis, pedunculatis, plerumque e axillis defoliatis; floribus racemose dispositis, circiter 8 mm diametro, calycis lobis orbicularibus, leviter ciliatis, petalis punctato-glandulosis, leviter acuminatis.

An erect shrub, the branchlets and inflorescences distinctly castaneous-pubescent, otherwise glabrous. Leaves oblong, membranaceous to chartaceous, 6 to 12 cm long, 2 to 3.5 cm wide, base acute, apex somewhat acuminate, somewhat olivaceous and slightly shining when dry, both surfaces with numerous, relatively large glands which are distinctly visible to the naked eye and which occur at fairly regular intervals on all parts of the leaf; lateral nerves 15 to 20 on each side of the midrib, very slender, not prominent, obscurely anastomosing, the reticulations obsolete or nearly so; petioles pubescent when young, soon becoming

glabrous, 5 to 10 mm long. Panicles lateral, from the ultimate branchlets, axillary and in the axils of fallen leaves, peduncled, bipinnate, 8 to 10 cm long, the flowers racemosely arranged on the primary branches, their pedicels 3 to 4 mm long. Flowers white, about 8 mm in diameter. Calyx lobes orbicular, rounded, glandular-punctate, margins ciliate. Corolla lobes oblong-elliptic, glandular-punctate, glabrous, 4 mm long, somewhat acuminate. Anthers lanceolate, acuminate, 2.5 mm long, the connectives slightly glandular.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 32982 Ramos*, August 12, 1918, altitude about 500 meters.

This species is well characterized by its numerous, relatively large, regularly spaced glands, which are distinctly visible to the naked eye on both surfaces of the leaf. Its alliance is with *Ardisia racemoso-panniculata* Mez, from which it is distinguished not only by its very evident glands but also by its very slender obscure nerves and practically obsolete reticulations.

ARDISIA LONGIPETIOLATA sp. nov. § *Pyrgus*.

Frutex glaber, ramis 6 ad 8 mm diametro; foliis confertis, anguste oblongis ad oblongo-ellipticis, usque ad 30 cm longis, integris vel obscurissime denticulatis, obtusis vel acutis, perspicue glanduloso-punctatis, nervis utrinque circiter 12; petiolo 4 ad 7 cm longo; paniculis circiter 30 cm longis, ramis inferioribus 9 ad 12 cm longis, floribus subumbellatim dispositis, sepalis punctatis, margine ciliatis; fructibus circiter 1 cm diametro.

A glabrous shrub, the branches terete, reddish-brown, 6 to 8 mm in diameter. Leaves pseudoverticillate, usually about 6 crowded at the end of each branch, narrowly oblong to oblong-elliptic or oblong-oblanceolate, 23 to 30 cm long, 6 to 10 cm wide, entire, or very obscurely toothed, apex obtuse to acute, base rounded, acute, or somewhat acuminate, when dry grayish or greenish olivaceous, shining, the lower surface rather densely glandular-puncticulate with dark-colored glands; lateral nerves usually about 12 on each side of the midrib, prominent, curved, anastomosing, the reticulations distinct; petioles 4 to 7 cm long, somewhat triangular. Panicles terminal, peduncled, about 30 cm long, the lower primary branches 9 to 12 cm long, the flowers subumbellately arranged at the tips of the primary branches. Pedicels about 1.5 cm long, thickened upward. Persistent calyx about 7 mm in diameter, the lobes ovate, acute, about 3 mm long, glandular-punctate, the margins ciliate. Fruits gla-

brous, globose, slightly glandular, red when mature, about 1 cm in diameter.

LUZON, Camarines Province, *Bur. Sci. 33492* (type), *33554 Ramos & Edaño*, December, 1918, in damp forests at low altitudes between Paracale and Mambulao.

This species belongs in the group with *Ardisia perrottetiana* A. DC., from which it is readily distinguished by its larger leaves and elongated petioles.

AMBYLANTHOPSIS Mez

AMBYLANTHOPSIS CRASSIFOLIA sp. nov.

Frutex erectus, glaber, ramulis incrassatis, cylindricis, circiter 1 cm diametro, cicatricibus multis ornatis; foliis crassissime coriaceis, integris, oblongis ad anguste oblongo-obovatis, 10 ad 13 cm longis, minute punctatis, obtusis, nervis utrinque 10, haud perspicuis, admodum subobsoletis; inflorescentiis axillaribus, plerumque racemosis, usque ad 7 cm longis; floribus 4-5-meris, 6 ad 7 diametro, petalis ellipticis ad oblongo-ellipticis, filamentis petalis aequilongis.

An erect glabrous shrub, about 2 m high, the ultimate branchlets much thickened, cylindric, about 1 cm in diameter and marked with numerous, large, petiolar scars. Leaves very thickly coriaceous, entire, oblong to narrowly oblong-obovate, 10 to 13 cm long, 3.5 to 4 cm wide, obscurely and minutely glandular-punctate, the apex obtuse, narrowed below to the acuminate base; midrib very stout, the lateral nerves about 10 on each side of the midrib, not prominent, sometimes nearly obsolete; petioles stout, 6 to 15 mm long. Inflorescences in the upper axil, up to 7 cm in length, the flowers usually racemosely arranged, sometimes in very depauperate panicles. Flowers red, 4- and 5-merous, 6 to 7 mm in diameter, their pedicels about 2 mm long. Calyx about 4 mm in diameter, the lobes oblong-ovate, obtuse, somewhat glandular-punctate, glabrous. Corolla lobes elliptic to elliptic-oblong, obtuse, 4 mm long, somewhat punctate, united for the lower 1 mm. Filaments as long as the petals, the anthers longitudinally dehiscent. Ovary and style 2.5 mm long, the ovary ovoid, the style as long as the ovary.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33288* (type), *33381 Ramos*, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is entirely different from the other described forms of the genus *Ambylanthopsis*, but by definition must be

placed in this genus unless a new one be proposed for it. It cannot be placed in the genus *Discocalyx* on account of its elongated filaments, which equal the corolla lobes in length. In the type specimen the much thickened, prominently scarred, ultimate branchlets attain a length of at least 15 cm and are distinctly thicker than the smooth or nearly smooth branches which bear them. The species is otherwise very prominently characterized by its very thickly coriaceous, entire, obscurely nerved leaves, which are crowded toward the apices of the branchlets and by its usually racemose inflorescences.

SAPOTACEAE

PALAQUIUM Blanco

PALAQUIUM GLABRIFOLIUM sp. nov.

Arbor novellis et floribus exceptis glabra; foliis subcoriaceis, anguste oblongo-obovatis, usque ad 14 cm longis, apice perspicue acuminatis, basi angustatis, cuneatis vel decurrento-acuminatis, nervis utrinque circiter 20, tenuibus; floribus solitariis vel fasciculatis, sepalis coriaceis, exterioribus glabris, interioribus leviter pubescentibus, circiter 3.5 mm longis; ovario puberulo.

A tree, 6 to 8 m high, entirely glabrous except the growing tips of the branchlets, the inner sepals, and the ovary. Leaves subcoriaceous, rigid, dark-brown when dry, shining, the lower surface paler than the upper, narrowly oblong-obovate, 10 to 14 cm long, 3.5 to 5 cm wide, apex rather conspicuously acuminate, the acumen blunt, narrowed in the lower one-half to the cuneate or somewhat decurrent-acuminate base; primary lateral nerves slender, about 20 on each side of the midrib, anastomosing, slightly more conspicuous than are the secondary nerves and reticulations; petioles 1.5 to 2 cm long. Flowers solitary or fascicled, from the axils of fallen leaves, their pedicels about 1 cm long, in age entirely glabrous. Outer sepals glabrous, thickly coriaceous, somewhat rugose when dry, very broadly ovate, 2.5 to 3 mm long, about 4 mm wide, the inner sepals ovate, obtuse or acute, about 3.5 mm long, slightly pubescent on the median portion, the margins thin, glabrous. Stamens and corolla not seen. Ovary slightly puberulent, 6-celled; style about 9 mm long, glabrous.

PANAY, Capiz Province, Mount Macosolon, *Bur. Sci. 30820 Ramos & Edaño*, April 22, 1918, on forested slopes.

This species is most closely allied to *Palaquium dubardii* Elm., from which it is distinguished by its conspicuously acuminate

leaves, which are much narrowed below, and by its much more numerous nerves. The characteristic indumentum of the genus is entirely wanting except on the growing tips of the branchlets and on parts of the flowers. The fruits with the specimens are globose or ovoid, about 2.5 cm in diameter, but are abnormal in that when young some insect has deposited its eggs in them and the developing larvae have destroyed the seeds, the entire fruit, except the parts destroyed by the larvae, being filled with a dense, rather brittle, somewhat woody substance.

SYMPLOCACEAE

SYMPLOCOS Jacquin

SYMPLOCOS BRACHYBOTRYS sp. nov.

Arbor parva, glaberrima; foliis coriaceis, integris, oblanceolatis, 5 ad 8 cm longis, obtuse acuminatis, deorsum angustatis, basi cuneatis, nervis utrinque 15 ad 18, tenuibus; racemis axillaribus, 1 ad 1.5 cm longis; floribus brevissime pedicellatis, circiter 8 mm diametro, calycis tubo circiter 1 mm longo, lobis orbiculari-ovatis, quam tubo brevioribus; fructibus cylindraceis, oblongis, circiter 1 cm longis.

An entirely glabrous tree, about 5 m high. Leaves coriaceous, entire, oblanceolate, 5 to 8 cm long, 1.5 to 2.5 cm wide, blunt-acuminate, much narrowed below to the cuneate base, subolivaceous, shining; lateral nerves slender, 15 to 18 on each side of the midrib, anastomosing, the reticulations lax, distinct; petioles 1 cm long or less. Racemes axillary, few-flowered, black when dry, 1 to 1.5 cm long. Flowers about 8 mm in diameter, pedicels 1 mm long or less, the subtending bracteoles elliptic-ovate, deciduous, about 1 mm long. Calyx-tube somewhat narrowed below, cylindric, 1 mm long, the lobes 5, somewhat spreading, orbicular-ovate, rounded, about 0.8 mm long, the inner ones slightly smaller than the outer three. Petals oblong to oblong-elliptic, obtuse, about 4 mm long. Stamens numerous, free, as long as the petals. Fruit oblong, nearly terete, about 1 cm long and 5 mm in diameter.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33277 Ramos,* August 22, 1918, on forested slopes, altitude about 900 meters.

This species closely resembles *Symplocos purpurascens* Brand and is apparently closely allied to that species. It is, however, very easily distinguished by its very short inflorescences and its much more numerous lateral nerves.

LOGANIACEAE

GENIOSTOMA Forster

GENIOSTOMA PACHYPHYLLUM sp. nov.

Frutex vel arbor parva, glabra, ramulis et foliis in siccitate nigris; foliis coriaceis vel subcoriaceis, anguste oblongis ad oblongo-lanceolatis, 5 ad 8 cm longis, basi acutis, apice acutis vel obscure acuminatis, nervis utrinque 5 vel 6, tenuibus, reticulis subobsoletis; fructibus axillaribus, solitariis, ovoideis vel ellipsoideis, circiter 7 mm longis, breviter pedicellatis.

A glabrous shrub or small tree, the branches terete, straw-colored, the young branchlets black when dry as are the leaves and petioles. Leaves coriaceous or subcoriaceous, brittle, narrowly oblong to oblong-lanceolate, 5 to 8 cm long, 1.2 to 2.5 cm wide, subequally narrowed to the acute base and to the acute or slightly acuminate apex; lateral nerves slender, 5 or 6 on each side of the midrib, obscurely anastomosing, the reticulations obsolete or nearly so; petioles about 5 mm long; stipules short, truncate. Fruits axillary, solitary, ovoid or ellipsoid, about 7 mm long, black when dry, their pedicels about 5 mm long; persistent sepals broadly ovate, rounded, their margins slightly ciliate.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33316 Ramos*, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is distinguished among the Philippine forms by its glabrous, slenderly nerved, brittle, coriaceous or subcoriaceous leaves, the reticulations being obsolete or nearly so, and by its solitary, axillary fruits. The whole plant, except the branches, is characteristically black when dry.

APOCYNACEAE

ALYXIA Banks

ALYXIA RETUSA sp. nov.

Frutex scandens, inflorescentiis leviter pubescentibus exceptis glaber, ramulis incrassatis, 5-angulatis; foliis verticillatis, 5-natis, crassissime coriaceis, obovatis ad oblongo-obovatis, 5 ad 8 cm longis, apice late rotundatis retusisque, margine revolutis, nervis tenuibus, indistinctis; cymis axillaribus, breviter pedunculatis, circiter 3 cm longis; fructibus usque ad 3 cm longis, partibus seminiferis solitariis vel binis, ellipsoideis, 10 ad 12 mm longis, 8 mm diametro.

A scandent shrub, glabrous except the sparingly pubescent inflorescence, the branches stout, up to 8 mm in diameter, rugose

when dry, the younger ones distinctly 5-angled. Leaves verticillate, 5 at each node, very thickly coriaceous, obovate to oblong-obovate, 5 to 8 cm long, 2.5 to 4 cm wide, the apex broadly rounded and retuse, base acute to decurrent-acuminate, margins somewhat revolute, the midrib impressed on the upper surface, very prominent on the lower surface; lateral nerves numerous, slender, indistinct; petioles 1 to 2 cm long. Cymes axillary, somewhat pubescent, shortly peduncled, about 3 cm long, excluding the fruits. Flowers apparently few, the persistent sepals ovate to oblong-ovate, obtuse, slightly pubescent, coriaceous, about 2.5 mm long. Fruits shortly pedicelled, either 3 cm long and constricted in the middle, with two ellipsoid seed-bearing parts, or not constricted and consisting of a single seed-bearing part, the seed-bearing parts 10 to 12 mm long, about 8 mm in diameter.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33330 Ramos*, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is strongly characterized among those with very thick coriaceous leaves by the leaves being broadly rounded and retuse at their apices.

RAUWOLFIA Linnaeus

RAUWOLFIA MEMBRANACEA sp. nov.

Frutex erectus glaber; foliis membranaceis, oblongis ad oblongo-lanceolatis, acuminatis, 7 ad 11 cm longis, nervis utrinque circiter 10, tenuibus; cymis axillaribus terminalibusque, paucifloris, 4 ad 6 cm longis, fructibus ellipsoideis, leviter compressis, 1 cm longis, in siccitate rugosis.

An erect glabrous shrub. Leaves membranaceous, olivaceous, oblong to oblong-lanceolate, slenderly acuminate, base acute, olivaceous and shining when dry, 7 to 11 cm long, 2 to 3 cm wide; lateral nerves slender, about 10 on each side of the midrib, petioles 7 to 12 mm long. Cymes axillary and terminal, peduncled, 4 to 6 cm long, apparently few-flowered, the persistent calyx-lobes lanceolate, acuminate, about 2 mm long. Fruits somewhat ellipsoid, slightly compressed when dry, about 1 cm long and 6 mm wide, somewhat narrowed to the acute base and usually obtuse apex, rugose when dry.

LUZON, Ilocos Norte Province, Mount Nagapatan, *Bur. Sci. 33214 Ramos*, August 9, 1918, on dry slopes, altitude about 700 meters.

This species is not closely allied to any previously described

Philippine form. It is well characterized by its membranaceous, slenderly acuminate, few-nerved leaves.

TABERNAEMONTANA Linnaeus

TABERNAEMONTANA ECARINATA sp. nov.

Frutex glaber; foliis charteceis, olivaceis, oblongis ad oblongo-ellipticis, 7 ad 14 cm longis, apice late obtuseque acuminatis, nervis utrinque 8 ad 10; infructescentiis circiter 6 cm longis, haud ramosis, folliculis 2 gerentibus; folliculis 2.5 ad 3 cm longis, inaequilateralibus, ecarinatis, apice rostratis; seminibus circiter 18.

A glabrous shrub, the branches slender, terete. Leaves chartaceous, olivaceous, shining, equal, oblong to oblong-elliptic or oblong-lanceolate, 7 to 14 cm long, 3 to 7 cm wide, base often slightly inequilateral, somewhat acuminate, apex broadly and obtusely acuminate; lateral nerves 8 to 10 on each side of the midrib, distinct, anastomosing, the reticulations slender, lax; petioles about 5 mm long. Inflorescences apparently very few-flowered, the peduncles in fruit up to 6 cm long, simple, each bearing a single pair of follicles but usually presenting one or two scars of fallen pedicels. Persistent sepals ovate, about 2.5 mm long. Corolla-tube about 12 mm long, the lobes spreading, narrow, about 1.5 cm long. Follicles yellow, 2.5 to 3 cm long, 1.5 to 2 cm wide, inequilateral, smooth, not at all keeled, somewhat compressed, one side nearly straight, the other semicircular, apex rather prominently rostrate. Seeds up to 18 in each follicle, irregular, 7 to 8 mm long.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33022* (type), *33082 Ramos*, August, 1918, in forests along small streams at low altitudes.

This species is strongly characterized by its rostrate, rather many-seeded follicles, which are not at all keeled. In vegetative characters it resembles some forms of *Tabernaemontana pandacaqui* Poir. but differs entirely in its fruit characters.

CONVOLVULACEAE

IPOMOEA Linnaeus

IPOMOEA POLYMORPHA R. & S. Syst. 4 (1819) 254.

Ipomoea heterophylla R. Br. Prodr. (1810) 487, non Ortega, 1800.
Convolvulus brownii Spreng. Syst. 1 (1825) 612.
Convulvulus robertianus Spreng. op. cit. 5 (1828) 192.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32945 Ramos*, July 25, 1918, in open dry places at low altitudes: Union Prov-

ince, San Fernando, *Lete 108, 175,* July and September, 1916, in open sandy places near sea level, with the Ilocano name *camarin.*

This species has been previously reported only from Australia and Formosa, but the Philippine specimens cited above agree very closely with the descriptions and with Australian material kindly supplied by Mr. J. H. Maiden. In vegetative characters the Philippine specimens present great variation, as do the Australian ones. I am further of the opinion that *Henry 1112* from Formosa represents a somewhat dwarfed form of the same species. My specimen of this, identified as *Ipomoea* sp., is but about 10 cm high and has unusually narrow leaves. In floral characters, however, it closely approximates the Luzon form.

VERBENACEAE

CALLICARPA Linnaeus

CALLICARPA OBTUSIFOLIA sp. nov.

Frutex, ramulis et petiolis et inflorescentiis et subtus foliis uniformiter denseque cinereo-stellato-tomentosus; foliis ellipticis ad oblongo-ellipticis, supra glabris, subcoriaceis, usque ad 8 cm longis, apice rotundatis, obtusis, vel subacutis, margine denticulatis, nervis utrinque 5 ad 7, perspicuis; cymis pedunculatis, dichotomis, usque ad 2.5 cm latis; floribus numerosis, circiter 2.5 mm longis, calycis extus dense albido-stellato-tomentosis.

A shrub, the branchlets, petioles, inflorescences, and lower surface of the leaves densely and uniformly cinereous-stellate-pubescent, the indumentum covering the entire surface. Branches terete, pale-brownish, glabrous. Leaves elliptic to oblong-elliptic, subcoriaceous, 5 to 8 cm long, 2.5 to 4 cm wide, the apex rounded, obtuse, or sometimes subacute, base usually obtuse, margins entire below, in the upper part distinctly denticulate, the upper surface brownish-olivaceous, glabrous or when young stellate-pubescent along the midrib; lateral nerves 5 to 7 on each side of the midrib, curved, distinct as are the primary reticulations; petioles 5 to 10 mm long. Cymes axillary, peduncled, dichotomous, up to 2.5 cm wide, the peduncles about 1.5 cm long; bracts linear-lanceolate, acuminate, 2 to 2.5 mm long; pedicels 0.5 mm long or less. Flowers rather crowded, pink. Calyx cup-shaped to obconic, about 1.6 mm long, densely stellate-pubescent, the teeth 4, short. Corolla glabrous, 2.5 mm long, the lobes equal, orbicular-ovate, rounded, nearly 1 mm in diameter. Filaments and style 5 to 6 mm long. Fruit globose, dark-brown and rugose when dry, about 2 mm in diameter.

LUZON, Ilocos Norte Province, Burgos, *Bur. Sci. 32921 Ramos*, July 27, 1918, in dry thickets at low altitudes, Ilocano *anayop*.

The alliance of this species is manifestly with *Callicarpa blancoi* Rolfe, from which it is especially distinguished by its elliptic to oblong-elliptic, usually rounded or obtuse, never acuminate leaves.

GESNERIACEAE

CYRTANDRA Førster

CYRTANDRA ILOCANA sp. nov.

Frutex glaberrimus; foliis chartaceis, integris, oblongis ad oblongo-obovatis vel oblongo-oblanceolatis, 3 ad 7 cm longis, in siccitate castaneis, basi acutis, apice acuminatis, nervis utrinque 5 ad 7, tenuibus; inflorescentiis tenuibus 1- vel paucifloris, pedunculis capillaris, 3 cm longis; calycibus cupulatis, 3 ad 4 mm longis, lobis late ovatis, 1.5 mm longis, acuminatis.

An entirely glabrous shrub, the branches grayish, 3 to 4 mm in diameter, marked with large petiolar scars; the branchlets slender, smooth, dark reddish-brown. Leaves subequal or one of each pair slightly smaller than the other, chartaceous, entire, oblong to oblong-obovate, or oblong-oblanceolate, 3 to 7 cm long, 1.5 to 2.5 cm wide, the upper surface dark-castaneous when dry, the lower much paler, base usually acute, often slightly inequilateral, apex distinctly acuminate; lateral nerves slender, 5 to 7 on each side of the midrib, curved, anastomosing, close to the margins, the reticulations very lax; petioles 5 to 9 mm long. Inflorescences very slender, axillary, one- or at most few-flowered, the peduncles capillary, about 3 cm long, each bearing one fruit and also presenting one or two scars at the apex as if there might have been two or three umbellately arranged flowers; pedicels slender, up to 1 cm long. Calyx cut-shaped, 3 to 4 mm long, the lobes broadly ovate, 1.5 mm long, acuminate.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33370 Ramos*, August 21, 1918, on forested slopes near the summit, altitude about 1,050 meters.

This species is allied to Cyrtandra glabrifolia Merr. (*C. glabra* Kränzl., non Jack) but differs in its smaller entire leaves and shorter petioles.

CYRTANDRA PANAYENSIS sp. nov.

Frutex, ut videtur scandens, ramulis junioribus ferrugineo-villosis, ceteroquin glaber; foliis oppositis, aequalibus, coriaceis vel subcoriaceis, ellipticis ad oblongo-ellipticis, 7 ad 10 cm longis, breviter acuminatis, longe petiolatis, nervis utrinque 7 vel 8,

perspicuis, margine distanter serratis; floribus axillaribus, fasciculatis, 2 cm longis, corollae tubo infra angustato, aequaliter 5-lobato, lobis circiter 2 mm longis; ovario glabro.

A shrub, apparently scandent, the young branchlets usually densely villous with brown or ferruginous hairs, the older parts entirely glabrous. Leaves opposite, equal, coriaceous or subcoriaceous, elliptic to oblong-elliptic, 7 to 10 cm long, 3.5 to 5 cm wide, dark-olivaceous and smooth above when dry, the lower surface paler, glabrous, apex shortly acuminate, base acute to decurrent-acuminate, the margins distantly serrate; lateral nerves 7 or 8 on each side of the midrib, very prominent on the lower surface, the reticulations lax, distinct; petioles at first ferruginous-villous, soon becoming entirely glabrous, 3 to 4 cm long. Flowers axillary, pink, about 2 cm long, fascicled, their ferruginous-villous pedicels about 1 cm long or less, subtended by a whorl of small, lanceolate bracts. Calyx about 10 mm long, 7 mm in diameter, ovoid or ellipsoid, black when dry, subcoriaceous, glabrous, the lobes 5, oblong-ovate, acute or slightly acuminate, 3 to 3.5 mm long. Corolla 2 cm long, the lower 12 mm slender, about 2 mm in diameter, then somewhat enlarged and 6 to 7 mm wide when flattened out, slightly pubescent externally or glabrous, the lobes 5, equal, broadly ovate, obtuse, about 2 mm long. Disk glabrous, truncate, about 1.5 mm high. Ovary and style glabrous. Fruit soft, fleshy, ellipsoid, about 12 mm long.

PANAY, Antique Province, Culasi, *Bur. Sci. 32241* (type), *32411 McGregor*, May 24, June 20, 1918, in the mossy forest, altitude about 1,000 meters.

This species is closely allied to *Cyrtandra tayabensis* Elm., from which it is distinguished by its smaller, fewer-nerved leaves and its entirely glabrous ovaries.

CYRTANDRA SANTOSII sp. nov.

Frutex 1 ad 2 m altus, partibus junioribus et inflorescentiis et subtus foliis dense et longe ferruginoso-villosis; foliis rigidis, coriaceis, oblongo-ovatis, usque ad 10 cm longis, longe petiolatis, acutis ad acuminatis, basi acutis ad subrotundatis, margine distanter et obscure serratis, supra laevis, nigrescentibus, vetustoribus glabris vel subglabris, subtus ferrugineis, ad costa et nervis et reticulis dense et longiter ferrugineo-villosis; inflorescentiis cymosis, paucifloris, pedunculatis, usque ad 6 cm longis, bracteis oblongis, circiter 2 cm longis; floribus circiter 18 mm longis, extus densissime villosis, calycis lobis longe caudato-acuminatis.

A shrub, 1 to 2 m high, the younger parts, inflorescences, and lower surface of the leaves, especially on the midrib, nerves, and reticulations, densely villous with long, soft, silky, ferruginous hairs. Leaves coriaceous, rigid, oblong-ovate, 7 to 10 cm long, 3 to 4.5 cm wide, often somewhat inequilateral, the apex acute to acuminate, base obtuse to acute, margins obscurely serrate, the upper surface smooth, blackish when dry, when young more or less villous, especially along the midrib, becoming glabrous, the lower surface ferruginous; lateral nerves about 8 on each side of the midrib, curved-ascending, prominent and projecting as are the rather dense reticulations; petioles up to 3.5 cm in length. Inflorescences axillary, solitary, peduncled, cymose, rather lax, densely ferruginous-villous, the peduncles up to 3 cm in length, the bracts membranaceous, oblong, villous, about 2 cm long. Pedicels, in anthesis, about 5 mm long, very densely ferruginous-villous, in fruit up to 1.5 cm in length. Flowers about 1.8 cm long. Calyx glabrous inside, densely villous outside, about 13 mm long, the tube 7 mm long, the lobes with a 4 mm long, stout, caudate acumen from a broad base. Corolla 1.8 cm long, densely villous externally, inside glabrous, the throat and lobes granular, the throat somewhat oblique, the lobes unequal, orbicular-ovate, about 4 mm in diameter. Disk truncate, glabrous; style 4 mm long, prominently capitate-glandular. Fruit white when fresh, brown when dry, oblong-elliptic, 1 to 1.5 cm long.

LUZON, Benguet Subprovince, Pauai, *Bur. Sci. 32071 Santos*, May, 1918, on slopes, altitude about 2,000 meters.

This very characteristic species is perhaps as closely allied to *Cyrtandra hypochrysoides* Kränzl. as to any other described form, but differs remarkably from that species in numerous characters, especially in its entirely different inflorescence, longer petioles, coriaceous rigid leaves, its much denser and longer indumentum, and its very different flowers.

CYRTANDRA LANCIFOLIA sp. nov.

Suffrutex circiter 40 cm altus, e basi ramosus, ramis tenuibus; foliis lanceolatis, membranaceis, in paribus inaequalibus, 5 ad 13 cm longis, utrinque subaequaliter angustatis, acuminatis, margine leviter undulatis, nervis utrinque 4 vel 5, utrinque glabris vel junioribus subtus leviter pubescentibus; floribus axillaribus, subsessilibus, circiter 5 cm longis, plerumque solitariis, bracteis foliaceis, spathaceis, usque ad 1.5 cm longis, deorsum connatis, perspicue acuminatis; calycis oblongis, 7 mm longis, subaequaliter 5-lobatis.

An undershrub, up to 40 cm high, branched from the base, the stems terete, about 4 mm in diameter, the branchlets brownish, slender, somewhat pubescent with very short hairs. Leaves lanceolate, membranaceous, those of each pair similar in shape but unequal in size, one usually one-third to one-half smaller than the other, 5 to 13 cm long, 1 to 2.7 cm wide, subequally narrowed to the acuminate apex and base, the margins somewhat undulate, the upper surface glabrous, brownish-olivaceous, the lower pale, glabrous or when young very slightly pubescent on the midrib and nerves; lateral nerves 4 or 5 on each side of the midrib, curved-ascending, anastomosing, the reticulations very lax; petioles 3 to 10 mm long. Flowers axillary, solitary or in pairs, white, sessile or very shortly pedicelled, about 5 cm long, each subtended by a pair of foliaceous spathelike bracts which inclose the calyx, being united by their margins in the lower 4 mm, these bracts 1.5 to 1.7 cm long, glabrous or nearly so, prominently acuminate, up to 9 mm wide below. Calyx oblong, about 7 mm long, slightly pubescent, subequally 5-lobed, the lobes lanceolate, acuminate, 2 mm long. Corolla 4.5 to 5 cm long, pilose with long scattered hairs externally, the lower 1 cm of the tube very slender, not exceeding 2 mm in diameter, then broadened, the throat, when flattened, about 1.5 cm wide, subequally 5-lobed, the lobes ovate, rounded, about 1 cm long. Disk cylindric, glabrous, 2 mm long, somewhat crenate. Ovary glabrous. Stamens about 3 cm long.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33078 Ramos,* August 29, 1918, along small streams in forests at low altitudes.

This species belongs in the group with, and is closely allied to, *Cyrtandra livida* Kränzl. and *C. agusanensis* Elm., from both of which it differs notably in its very much larger flowers, while the leaves are merely undulate, not toothed.

ACANTHACEAE

HEMIGRAPHIS Linnaeus

HEMIGRAPHIS NUMMULARIFOLIA sp. nov.

Herba glabra, tenuis, ramosis, prostratis vel subprostratis; foliis orbicularis ad orbiculari-ovatis, integris, 5 ad 10 mm longis; floribus axillaribus, solitariis, ebracteolatis, circiter 1.3 cm longis, calycis segmentis lineari-lanceolatis, 6.5 mm longis; capsulis anguste oblongis, 9 mm longis.

A slender, much-branched herb, the main branches spreading or prostrate, up to 20 cm long, the secondary branches more or

less ascending, glabrous or nearly so, none of the branches more than 1 mm in diameter. Leaves orbicular to orbicular-ovate, 5 to 10 mm long, rounded, entire, olivaceous, the upper surface with rather numerous, irregularly scattered cystoliths, the lower surface slightly hispid on the midrib and nerves; lateral nerves 2 or 3 on each side of the midrib, not prominent. Flowers axillary, solitary, ebracteolate, about 1.3 cm long, sessile. Calyx segments nearly free, about 6.5 mm long, 1.5 mm wide or less, linear-lanceolate, acuminate. Corolla white or faintly tinged with blue, the lower 6 mm of the tube slender, cylindric, then broadened; lobes 5, subequal, orbicular, about 3 mm in diameter. Filaments bearded; anthers 1 mm long. Capsules narrowly oblong, acute or slightly acuminate, glabrous, about 9 mm long, 1.5 mm in diameter. Seeds about 12, orbicular-elliptic.

LUZON, Ilocos Norte Province, between Bangui and Claveria, *Bur. Sci. 33031* (type), *32974 Ramos*, August 30, 1918, on dry open banks, the leaves when fresh reddish-purple beneath.

This species belongs in the group with *Hemigraphis reptans* Nees and is most closely allied to *H. fruticulosa* C. B. Clarke. It is well characterized by its unusually small, orbicular, entire leaves; by its axillary, solitary, and ebracteolate flowers; and by being glabrous or nearly so throughout.

COMPOSITAE

VERNONIA Schreber

VERNONIA GLANDULIFOLIA sp. nov.

Frutex scandens, ramulis junioribus bracteisque exceptis glaber; foliis lanceolatis ad oblongo-lanceolatis vel oblongo-ellipticis, subcoriaceis, 4 ad 7 cm longis, basi acutis, apice acutis vel leviter acuminatis, subtus minute et dense glanduloso-punctatis, nervis utrinque 6 ad 8, distinctis; capitulis paucis, solitariis vel binis, circiter 2 cm longis, multifloris, bracteis pubescentibus, interioribus circiter 1 cm longis.

A scandent shrub, glabrous except the very young branchlets and the involucral bracts, the branches grayish-brown when dry, not lenticellate, the slender branchlets dark reddish-brown. Leaves lanceolate to oblong-lanceolate or oblong-elliptic, subcoriaceous, olivaceous when dry, entire, 4 to 7 cm long, 1 to 2 cm wide, subequally narrowed to the acute base and the acute or slightly acuminate apex, the lower surface rather densely and minutely glandular-punctate, the numerous glands sunk in minute pits; lateral nerves 6 to 8 on each side of the midrib, distinct, anastomosing; petioles 5 mm long or less. Heads few, solitary or in

pairs at the tips of the branchlets, in fruit about 2 cm long, their peduncles about 1 cm long; involucral bracts more or less pubescent, the outer ones 2 mm long or less, the inner ones narrowly oblong-lanceolate, about 1 cm long, their margins ciliate. Achenes about 4 mm long; pappus hairs numerous, about 1 cm long, pale reddish-brown.

LUZON, Ilocos Norte Province, Mount Palimlim, *Bur. Sci. 33374 Ramos*, August 21, 1918, on forested slopes, altitude about 1,000 meters.

This species is well characterized among the woody scandent forms by its small, densely glandular-punctate, glabrous leaves and its few heads. Its alliance is with *Vernonia pyrrhodasys* Schulz-Bip.